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RESPONSIBILITY OF THE SURGEON TO MODERN SOCIETY

CHAIRMAN'S ADDRESS

I. S. Ravdin, M.D., Philadelphia

In the selection of a subject for the chairman's address to this section, I have taken one which does not deal with great achievements of surgery. These are well known to our colleagues in the various branches of medicine and to the lay public as well; they need no praise, for they have added immeasurably to the comfort and well-being of our people. In the therapy of some diseases and abnormalities internal medicine has become more and more surgical, while in others nonsurgical means of therapy now provide a safer and better means of achieving health than operation ever afforded. The surgeon has long been sensitive to the changing therapy of disease, perhaps more so than his strictly medical colleagues.

In the attack now being made on American medicine, surgeons unfortunately have provided a considerable amount of the ammunition which is being used by those who would destroy medicine as it is, and should be, practiced. In these days of uncertainty, it is incumbent on all of us to realize our duties and responsibilities to modern society. We can no longer evade them; we can no longer remain silent about them, for to do this is to shirk our duty. What I have to say applies to but a small segment of American surgeons, but the actions of this small group are now reflecting on surgeons as a whole.

If surgeons are to improve their position in our modern society; if they are only to maintain the position which they have previously held, they must concern themselves with certain of these problems. The very cornerstone upon which our democracy was founded was the rights of the individual. Among those rights is that of every patient to expect good medical and surgical care. The most thoughtful men in American medicine have accepted this principle for generations. Such unanimity of opinion on any other precept has rarely been achieved in our democracy. All surgeons can be held responsible for the derelictions of a small segment of our profession if we fail to attempt to do something about them.

Many of the problems which now confront us are not new. They confronted the Founding Fathers of this country and their fathers before them. The earliest code of Hammurabi, promulgated 2,250 years B. C., prescribed the conditions of practice and defined the fees which the physician could charge.

Thoughtful surgeons are concerned with the fact that our hospitals and medical schools are accumulating mounting deficits. We frequently record the fact that the rich and near rich no longer give freely to these institutions so necessary to our modern society. And yet, a few surgeons are constantly alienating such people from providing the help which we have a right to expect them to give. The truth is that some surgeons' fees are higher than they ought to be. This is true now, and it was true in Rome in the fourth century B. C. for it was recorded then that ". . . where there is a question of fees, the medical officer must take as a standard not what men fearing death will agree to pay, but what men recovered from illness will offer."

It is interesting to be reminded in retrospect that many of the problems that seem so new to us today are in reality old ones. It merely is illustrative of the fact that the best men in our profession are frequently held responsible for the acts of a few inconsiderate men. On Oct. 21, 1639, the Colonial Assembly of Virginia took into consideration the excessive rates and prices exacted by practitioners of medicine and surgery. To quote from the Ninth Act of the Assembly,

> It so happening through the said untolerable exactions that the hearts of divers masters were hardened rather to suffer their servants to perish for want of fitt meanes and applications than to employ griping and avaracious men. It being apprehended by such masters who were more swayed by politic respects than by Christian duty or Charity. Yet it must be admitted that the charges of the physician or surgeon exceed for the most part the purchase of the patient.

The subject arose again and again, and in 1661 and 1736 colonial Virginia took further cognizance of the excessive and immoderate prices "exacted by diverse avaricious and gripering practitioners in physic and surgery." At no time did colonial Virginia cast aspersions on the entire profession.

Read before the Section on Surgery, General and Abdominal, at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 14, 1951.

I was reminded of this aspect of our dereliction recently when a prominent lawyer came to see me. He asked about a patient I had seen in consultation. The patient had diabetic gangrene. I advised amputation. I saw the patient again several weeks later; the gangrene was above the knee. I insisted that further delay was dangerous to life. The amputation was done. The surgeon sent a bill for $25,000.00 and the internist for $15,000.00. In medicine the adage of charging all the traffic will bear is immoral, and the surgeon who does this is doing a great disservice to his profession and to the institution in which he works. The lawyer criticized the internist and surgeon severely, but how often do lawyers subject their clients to bills of this extent! It merely goes to prove that in our profession we are expected to be more sensitive to such immoralities, and we should be.

We must admit that all is still not well in our profession. We can never be sure that it ever will be, but we can, I am sure, continue to set standards which will remain the envy of the entire world. We must be sure that the men who are permitted to do surgery, have been properly trained to do it. To the extent that we fail in this objective, patients will not receive the full benefits which they have a right to expect. Many patients are being subjected to needless operations, and preoperative and postoperative care is not always the best throughout the country as a whole. The so-called successful surgeon is not always the best individual to do a particular operation, or to give the patient the full benefits that surgical science now has to offer. Over and above all these matters, surgeons at times are not facing issues with their patients as they ought to face them—with candor, with honesty, and with a complete sense of the responsibilities which are incumbent upon the doctor to whom the patient entrusts his life. These matters are of deep interest, not only to the patient—who, after all, is the consumer of the surgeon's effort—but to all those concerned with the best interests of medicine in this country. These are matters which must concern the Fellows of this traditionally great Section.

Surgical training varies greatly from one hospital to another. A surgeon is never trained merely by assisting another surgeon, for to become technically proficient the young trainee must have the opportunity, under supervision, to do surgery. He must, as his training is extended, be provided with increasing opportunity and responsibility. In some institutions in this country, the responsibilities of the staff in the training program are not realized. Young men following training frequently attach themselves, because of opportunity or necessity, to established surgeons. They quickly assume the ways of working, the traits, good or bad, of the men with whom they are associated. Accordingly, they will be either good or bad surgeons when on their own in the practice of surgery. A deep realization of our responsibilities is necessary to all of us. In no other way can we be sure that the young man who has completed his training will not default in either his capacity to do good for the public or his responsibility to the profession of surgery. Technique will be learned at the operating table; judgment will be learned by years of training alongside men who have judgment; honesty of purpose, however, which is so important, will depend on the most careful selection of our trainees and upon the example to which we expose them.

We hear much about fee-splitting in this country. That it exists to a greater or lesser extent in many communities cannot be denied. When fee-splitting is practiced, patients may be referred not to the surgeons best able to effect a cure, but to those who provide the referring physician with the largest share of the patient's fee. We shudder when we read in our papers about the "kickback" in industry, and the "5 percenters"; yet I wonder if all of us are at times lacking in social consciousness when we turn our backs on this iniquitous practice in surgery. Young men recently out of the best of our surgical residencies often find it difficult to make a living if they resist the fee-splitting practice.

Some answer must be found for the inequitable distribution of fees between internist or general practitioner and the surgeon, but the answer is not that of splitting fees. The patient has every moral right to know what the fee he pays is for. Young surgeons with principles must have the support of all of us in their attempt to establish themselves without succumbing to this practice. The great organizations that represent surgery in this country must give more than lip service in disowning it, and individual surgeons who participate in this practice must be made to realize that they are destroying one of our most treasured possessions—the free conduct of our profession.

It is frequently asked by patients and their families, "Is an operation necessary?" They have every right to ask this question. It is asked frequently by thoughtful physicians and surgeons when they look at the schedules of operations in certain of our hospitals. What are all the operations for chronic appendicitis, noncalculous cholecystitis and abdominal adhesions being done for? Are the organs which are being removed causing any of the symptoms which have brought the patient to the surgeon? Are not the adhesions at times due to a previous operation which in reality was not justified? The removal of an appendix for burning pain in the right lower quadrant will too often be followed by an operation for adhesions in six months or a year, and then by a cholecystectomy and another operation for adhesions. Most of these operations are unnecessary, for the symptoms which these patients present are psychosomatic in origin; operation does not cure them.

It is time we were frank about the "rape of the pelvis." The wholesale removal of ovaries and tubes and of uteri is all too frequently done without consideration of the harm which is being done the women involved. Operations for retroversion are still being done by the hundreds for backache, and after operation, when the backache returns, the uterus is removed. How often does a retroverted uterus really cause backache?

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Recently I received a letter from one of my ex-residents about some of these practices. He wrote:

> Many undesirable practices have been encountered here as I am sure they must be encountered elsewhere. I am happy to report to you that in spite of frequent temptations, I have never compromised on a single principle. I have turned down more surgery than I have done, because I considered it unjustified even though the patients were referred for surgery. I have angered a few by refusing to do "ghost surgery," which I consider to be a dreadful dishonesty, but in so doing I have gained the respect of others. When are you older men going to make the practice of surgery what it ought to be?

"Ghost surgery" in many of our communities has spread rapidly. The general practitioner employs a surgeon to do the operation. The surgeon sees the patient under the anesthesia in the operating room. He has no part in the decision of whether operation is necessary; he does not control the postoperative care. He lurks in the shadows selling his services. The patient is led to believe that his own doctor did the operation, and very soon the doctor does begin to do such procedures, not because he is competent to do them, but because the patient believes he is and a hospital permits him to operate. Such practices lead to the degradation of surgery. It is fee-splitting in reverse. It is not only immoral, it is dishonest.

We must stop performing biopsies on breasts for chronic cystic disease in the absence of a dominant lump. What do we gain by such a procedure? We must stop doing operations which cater to the whims of distraught patients, but which provide a poorer chance for five or 10 years' survival. Conscience has been and must remain the motivating factor that controls our daily lives. Recently a surgeon told a family that another surgeon who was to operate took too long for the operation, often did it in stages, and in the end would leave the patient altered for life with a "dreadful colostomy." I cannot convince myself that the operation he recommended for a lesion 6 cm. from the anus was as good as the traditional Miles operation.

Consultants are often necessary, but the tendency to call them when they are not required adds to the cost of medical care. What is even worse is the tendency, at times resorted to, of forcing the use of a particular group of consultants. The patient and his family should have a free choice of consultants.

All operators are not really surgeons. The technical aspects of an operation represent but one facet of surgical care. The surgeon must prepare his patient to withstand the assault of anesthesia and operation, and he must direct the postoperative care. It is highly likely that more lives will be saved by intelligent preoperative and postoperative care than will be saved by variations in the methods used for a particular operation. The decision of when to operate and what operation to perform are often matters of lifesaving character. They are decisions which surgeons are prepared to make. The operator, skillful as he may be technically, is often not as well prepared to make them.

The responsibility of the surgeon should not cease when the patient leaves the hospital. Follow-up studies carefully made are the only way of assessing the end results of our work. We must recognize that careful follow-up studies provide the sole means of ascertaining the value to the patient of what we have done. We must recognize that surgical care is only a part of the broad aspect of community care. It must be always exercised in the public interest, and it usually is.

Surgical mortality reporting is shockingly dissimilar throughout this country. Editors must establish uniform criteria for mortality reporting, but, when all is said and done, mortality data are not the sole criteria upon which to pass judgment. What is equally, if not more, important is how long the patients live free of symptoms following a particular operation.

I should also like to bring up the manner in which we continue to handle cancer in our discussions with patients. A patient with a radical mastectomy or a permanent colostomy knows that he or she has had cancer, and we fail to meet our obligation when we deny it. What a relief, as a rule, it is to the patients when we are willing to discuss the future with them.

These matters I have discussed are concerning many thoughtful people in and out of medicine and surgery. It is for us to continue to formulate the policies which will provide a solution for them. It will be short-sighted on our part to fail to acknowledge that they concern us and to do nothing about them. Ours is a social as well as a scientific or biological responsibility. We have every right to expect the continued freedom of our profession, and as long as we have it we will continue to accept our responsibility to set our house in order. We have increased our usefulness to the citizens of this great country. Each of us, I am sure, realizes that his freedom of action depends upon the continued realization of his responsibilities in the improvement of the health and welfare of his people. We have a great heritage. We must protect and nourish it.

3400 Spruce St.

Cybernetics.—Feed-back offers a reasonable explanation of certain functions of the nervous system, whose derangement could account for observed symptoms and signs in disease. Whether feed-back pathways are, in fact, so used in the nervous system, and to what extent they are a fundamental method of co-ordination and control, remains to be established. . . . The study of the intact nervous system, with all its possible feedback pathways, will be a formidable undertaking. We can, however, recognize that the brain is, in the structure and function of its individual neurones and their synapses, wonderfully constructed to act as a complex system including intricate feedback pathways—the miniature circuits permitting a vast complexity in a very small space. . . . Retention of information, resembling memory, is a necessary function of the automatic computing machine, and is secured by the use of endlessly repeating impulses in closed circuits, a dynamic recording process depending on a circus movement. Circus movement is no new conception in physiology; we can recognize it under certain conditions as an inherent property of cardiac muscle. It has been suggested that circus movement in closed neurone circuits, so-called reverberating circuits, may be a basic element of cerebral function, perhaps concerned, amongst other activities, with memory and recollection.—Alan Thompson, Cybernetics and Animal Integration, *Irish Journal of Medical Science*, July, 1951.

CHANGING MILITARY MEDICAL PICTURE IN THE UNITED STATES

Richard L. Meiling, M.D., Columbus, Ohio

The devotion of the American medical profession to the nation's service in time of war as in time of peace parallels the course and history of the republic and is indeed a source of justifiable pride to every member of the profession. The military medical services trace their beginning to the first days of the Army at Boston in 1775. Their remarkable development is illustrated when it is remembered that Washington's army throughout the whole seven years of the American Revolution probably did not exceed 5,000 men on the average, while in June, 1950, prior to the Korean conflict, the Army, Navy, and Air Force had more than 6,000 physicians on the active duty roster. Today the number of physicians on active duty exceeds 12,000.

The daily lives of the majority of the civilians during the revolutionary days were little altered by the military demands. It is to be recalled that during World War I America's daily life went on almost as usual with little change in the standard or manner of living. The impact of World War II changed not only the standards and manner of living but also the political, economic, and foreign policies of the country. The military medical picture has of necessity paralleled the changing foreign and domestic policies of the government. The attention of both military and civilian physicians must be focused on certain fundamental problems caused by the changing political thoughts of their fellow citizens and the resulting responsibility which physicians owe their country, their patients, and their profession.

Very few members of the medical profession concerned themselves with the changing foreign and domestic policy of the United States from 1945 to 1950. Nor did they watch the foreign policies of other world powers. As the fighting ceased in 1945, the hopes of all were high. The citizens of the United States—ever optimistic—refused to believe that any reasonable person would plan another bloody struggle just after the conclusion of a war which had cost the belligerents more than 20 million lives and had led to the development of such new destructive weapons as the guided missile, the atomic bomb, and so forth. On the strength of these high hopes for the future, the armed forces and the nation demobilized both physically and mentally. Everyone hoped for the return to "normal."

In the field of medical science our country embarked upon a heretofore undreamed of expansion in both private and governmental hospitals and medical research programs. The armed forces, the Atomic Energy Commission, the Veterans Administration, and the United States Public Health Service through the National Institutes of Health developed a competitive field of endeavor with university and metropolitan hospitals and institutions for trained personnel and facilities in both laboratory and clinical research. Graduate medical education originally planned as an advanced educational program providing stability and professional proficiency for both civilian and governmental medical services became a "procurement program" with competition as to salary, rank, and promises of security to be found in "career planning." Patients were sought to maintain clinical and graduate teaching programs. Governmental hospitals and medical programs were in some instances providing duplicate services. Corrective action was necessary and has been taken.

The citizenry of the United States lost sight of the danger signs which were first apparent in 1945 when the "Russian allies" began their now famous "blocking procedures" over the German surrender in Italy, the solution of the Trieste problem, the employment of the Red Cross in Eastern Europe, and the Potsdam conference. Perhaps the high ideals expressed in the United Nations' charter, in which the signers declared themselves to be ". . . determined to save succeeding generations from the scourge of war . . ."lulled "John Q. Citizen" into false hopes. One and all nobly resolved that it should never happen again.

In 1947, after almost two years of hearings and debate, congress enacted the National Security Act (often referred to as the Unification Act). This, then, was the cornerstone upon which the total defense of the United States was to be built; it covered not only the military forces but national resources, industry, and manpower as well. The civilian and military medical leaders, however, failed to comprehend the significance of this legislation as related to medical and health programs. A physician of the character and vision of Dr. Franklin H. Martin of World War I was needed. President Wilson in 1916 appointed him a member of the Advisory Commission of the Council of National Defense, where he provided medical advice at the cabinet level during World War I. The wisdom, vision, stature, and patriotism necessary to present sound medical advice and to assure its being heard by our legislative, executive, and military leaders was, unfortunately, not forthcoming in 1946 and 1947.

When, in 1947, the hope for a peaceful future began to fade, our nation approved the Truman Doctrine and aid for Greece and Turkey and then started work on the European Recovery Program (Marshall Plan). Widespread confidence, however, in American "know how" prevented the full realization by most people of future dangers. The Soviet Union was generally considered incapable for some time of producing either atomic bombs or long-range bombers with which to deliver them.

In 1948 the writing on the wall became progessively clearer, but the temper of the time remained unattuned to foresighted precautions. The Czechoslovakian *coup d'état,* the Italian electorial struggle, and finally the Berlin blockade all furnished greater evidence of the Soviet Union's intentions. As an answer to Soviet actions, congress enacted legislation to assist European nations

Former Chairman of the Armed Forces Medical Policy Council, Office of the Secretary of Defense.

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in their economic recovery and to start the plans for a North Atlantic Treaty and the military defense assistance program. The necessity for an expanded military establishment was not yet recognized. Thus, the major problem of the armed forces medical services was to develop coordinated plans and practice the utmost economy in order to obtain the greatest possible efficiency.

In the operational field the rapidly changing international situation made increased strength an essential factor. Since it could not be obtained by immediate expansion, the armed forces strength had to be gained by efficiency, economy, and management control. Thus, for two years the Department of Defense searched for ways and means to make each tax dollar give the nation more in combat readiness and striking power with which to meet possible emergencies. It was a long, difficult task trespassing on time-honored customs and traditions of the services and misunderstood both purposely and through lack of understanding by many, both in and out of uniform. Despite the sudden termination of this program following the invasion of South Korea in June, 1950, it yielded results which have already paid dividends for American forces and will continue to pay dividends in the days to come.

Economy, efficiency, and management control are virtues to be sought by the military services regardless of the size of the budget. They are necessities in areas of limited national resources, especially in the medical and health services. To meet the need for a top level medical coordinating agency, the Secretary of Defense in January, 1948, appointed the Committee on Medical and Hospital Services of the Armed Forces (Hawley Board) composed of the two Surgeons General, the Air Surgeon, and Dr. Paul Hawley. This group was handicapped from the very beginning by the fact that the members were technical staff officers without authority to act in the name of their services or departments at the Secretary of Defense level. The recommendations of this committee were subject to lengthy review on all echelons within the three military departments before they were finally given to the authors themselves, in their roles as Surgeons General in the respective services, for further study and comment on what they had originally recommended. This committee was abolished in July, 1949.

It was in the summer of 1948 that the Hoover Commission's Task Force on National Security (Eberstadt Committee) reviewed the organization of the national military establishment. Shortcomings in the field of medical and health affairs became most evident to this lay and professional group. Likewise, a task force studying federal medical services (Voorhees Committee) presented recommendations concerning reorganization of the military medical services. The first Secretary of Defense, the late James Forrestal, sought the advice of the Eberstadt Task Force and the counsel of several medical leaders. He wanted a joint civilian-military medical advisory group to advise the Secretary of Defense on medical and health affairs of the armed forces, and so the Armed Forces Medical Advisory Committee was appointed in November, 1948. The chairman, Mr. Charles P. Cooper, was also named deputy to the Secretary of Defense for health matters, which position he held until July 6, 1949.

In May, 1949, the Secretary of Defense established, on the recommendation of the Armed Forces Medical Advisory Committee, the Office of Medical Services headed by a civilian physician with the title of Director of Medical Services. The responsibility for medical policy and program development and control was vested in the Director of Medical Services. He established an advisory group composed of the three Surgeons General and his immediate staff. With the advent of the Korean conflict, the Chief Medical Director of the Veterans Administration and the Surgeon General of the United States Public Health Service were invited to attend all meetings as observers, thus formalizing interagency medical policy discussions on defense matters for the first time.

In January, 1951, the importance of medical coordination at the Secretary of Defense level was further recognized by the establishment of the Armed Forces Medical Policy Council. The duties of the Armed Forces Medical Advisory Committee and the Office of Medical Services were transferred to this new council.

This council, representing our present top level medical policy organization in the Department of Defense, is chairmaned by a civilian physician and is composed of the three Surgeons General and three civilian leaders in the medical and health fields: Maj. Gen. George E. Armstrong, M. C., U. S. A.; Rear Adm. Herbert L. Pugh, M. C., U. S. N.; Maj. Gen. Harry G. Armstrong, M. C., U. S. A. A. F.; W. Randolph Lovelace, II, M.D.; Isidor S. Ravdin, M.D.; James P. Hollers, D.D.S., and myself, the first chairman.[1] The civilian chairman is the assistant to the Secretary of Defense on all medical and health matters, thus facilitating his daily working relations with the military departments, the agencies, boards, councils, and committees of the Department of Defense. He is also vested with the authority of direct liaison with outside agencies concerned with medical and health matters. There are many of these, such as the Bureau of the Budget, Atomic Energy Commission, United States Public Health Service, National Institute of Health, Veterans Administration, National Security Resources Board, Office of Defense Mobilization, Selective Service, National Research Council, National Science Foundation, American National Red Cross, and also the various professional organizations. In medical and health problems, policy control within the Department of Defense has been established and maintained at the level of the Secretary of Defense.

Perhaps the most difficult task was to develop an understanding by both professional and lay personnel of the changing world affairs and the urgent need for combat-ready military medical services. The public press, radio, and television have presented first hand information on the military medical problems and successes in Korea, at other overseas areas, and here at home. The record speaks for itself. The military medical services have met the demands of the Korean conflict, the doubling of our military strength in nine short months, and the deployment of troops to overseas areas by bettering even the outstanding medical achievements of World

1. I resigned effective July 1, 1951, and Dr. W. Randolph Lovelace, II, was appointed chairman effective July 1, 1951. Alfred Shands, M.D., was appointed a member of the Armed Forces Medical Policy Council effective July 1, 1951.

War II, which were recognized as the acme of medical advancement in the military field.

The challenge which confronts the United States today is probably the greatest which has been encountered in the history of the country. Dark days were experienced in the Revolutionary War and in the War of 1812, and both sides experienced desperate moments during the Civil War. The United States entered the two world wars when the might of the enemy was at its peak. On all these occasions, however, the issue was clear-cut; the objective was comparatively simple. By mobilizing the full strength of the nation and joining in a common effort, it was evident that those emergencies could be brought to an end; with the job done, the citizen soldiers, sailors, airmen, and civilians could return to their former pursuits and live happily ever after.

The present crisis is of an entirely different type. The United States is facing the severe test of having to devote the same type of effort and sacrifice to prevent a third world war that in the past was devoted to winning a war. This is a novel experience for American citizens. They must and can meet this challenge if each recognizes the import, the urgency, and, above all, the need for individual sacrifice, not merely in taxes but in time, effort, and thought devoted to the common cause.

The foreign and military policies of the United States are united on three basic objectives, which Gen. Bradley recently expressed as follows:

> 1. We will protect and maintain our form of government and our way of life against any challenge and at any cost. 2. We seek peace. We will not provoke war. We will not wage a preventive war. But we will not follow the path of appeasement. 3. We seek peace not only for ourselves, but for all others. We therefore support the United Nations.

The Secretary of Defense, Gen. Marshall, has stated that the government is now thinking in terms of a possible 10-year tension, a prolonged tension, rather than full-fledged war, during which the strength and resources of the nation can be built to sufficient size to provide adequate national protection.

What then does this mean to the medical profession? First and foremost, the armed forces will require approximately 13,000 physicians continually on active duty.[2] This is based on the ratio of 3.7 physicians per 1,000 troop strength recommended by the Health Resources Advisory Committee (Rusk Committee) of the Office of Defense Mobilization and concurred in by the Department of Defense. Congress, on recommendation of the medical and dental professional associations, enacted Public Law 779 [3] (the physician and dentist draft bill) as a temporary "control measure" to assure by legislation the availability of sufficient medical manpower to meet the needs of the armed forces. Such manpower control should not be accepted as permanent. Some new means to meet this military requirement over a period of 10 years must be developed. The merits of the plans currently operating in other democratic countries might be carefully considered. In these countries each medical graduate serves his country for a prescribed period of time, both during academic vacation and after completion of his medical training, the same as does each 18- or 19-year-old under Universal Military Service. This can be in several small periods or in one single period of time, depending on individual and military needs. Such a plan has greater merit than to expand overly the regular military medical services or to interrupt the academic programs of our universities for two full years of training at the age of 18 in order to meet the anticipated military medical requirements. With a force of 3½ million men under arms in 1951, in comparison with a force of 185,000 in 1938, many of the coveted traditions of the services must give way to practical considerations in the best interests of the nation as a whole. Today no United States military patient is more than 30 to 36 flying hours from the specialized and definitive care hospitals of continental United States. It is wasteful of the limited national resources to build, sufficiently staff, or operate duplicating systems of specialized and definitive care hospitals in overseas areas and continental United States as was done in World War II. Each military patient overseas requires five able-bodied noncombatants to provide for him. Each of these persons requires approximately 0.8 measurement tons of supplies (food, clothing, and so forth) every 30 days. Thus, to care for one patient overseas for 30 days requires approximately 4.8 measurement tons of supplies, which must be shipped by air or water to the overseas theater. Military commanders recognize these facts and expect medical plans to be developed with full consideration given to reducing to a minimum these requirements.

With the rapid movement of patients back to the United States, careful screening must be accomplished at overseas areas. Some changes in the present accepted surgical and medical treatment methods may be forthcoming to meet the patient needs and professional requirements as air evacuation is utilized to its maximum. For example, orthopedic patients might be transported to the United States prior to permanent fixation and the application of traction devices; plastic surgery may be delayed until arrival in the United States, and so forth.

As soldiers, sailors, and airmen experience the same excellent medical care and treatment in all hospitals of the armed forces, the resistance to joint utilization of military hospitals of one service or the other will be reduced to a minimum. In November, 1950, more than 7,000 military patients were in service hospitals (in the United States) other than those of their own parent service. No complaints about medical care or treatment were received from these patients.

Military patients who may not be returning to active duty can be transferred without delay to the Veterans Administration hospitals, as directed by the President in January, 1951, thus utilizing the excellent hospital facilities of the Veterans Administration for these service-connected patients and relieving the armed forces of this responsibility. The new Veterans Administration hospital system of approximately 130,000 beds is an addition to the governmental medical services since World War II which must be fully considered in all military planning.

The United States forces together with members of the armed forces of some 16 nations fighting in Korea have given a preview of the medical and hospital coordination problems of an international military force. The development of the North Atlantic Pact Nations' Forces in

2. Current strength of the armed forces is 3½ million.
3. Further amended and extended by Public Law 51, 82d Congress.

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Europe poses still additional problems in the medical field. These problems must be recognized, and their solution should not be attempted on the basis of national prejudices, provincialism, or selfish pride in the medical standards or advancements of individual countries. Full recognition of the medical programs, customs, and policies of participating allies is as necessary as recognition of the military proficiency of the participating allied countries and leaders. The development of a successful military operation under coordinated command requires the fullest cooperation regardless of the nationality of the commander, his staff, or his medical chiefs.

Civilian and military physicians of the United States can and must make adjustments to meet the new and changing order in which the citizenry of our country now live. The "teamwork" of military and civilian physicians will find further expression in the years to come in the Sessions on Military Medicine of the Scientific Assembly of the American Medical Association. It is fitting and just that this forum has been established. There is no sharp line of demarcation between military and civilian medicine. Physicians in each must understand the problems of the other and give full recognition to the achievements made.

Physicians have ever been in the forefront in our nation's service. In the years of tension ahead, each physician must keep a clear vision, a sound professional approach to all problems, and place patriotism above self-interest or vested interests. Return to the "normal" of the past is an impossibility. We physicians are citizens of a nation recognized as the world leader. Our duties as citizens of the United States demand that we be as well informed on domestic, economic, military, and foreign affairs as on professional and scientific advancements throughout the medical world.

College of Medicine, Ohio State University.

EFFECT OF CORTICOTROPIN (ACTH) IN CHRONIC ULCERATIVE COLITIS

OBSERVATIONS IN FORTY PATIENTS

Joseph B. Kirsner, M.D.
and
Walter L. Palmer, M.D., Chicago

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The remarkable influence of corticotropin (ACTH) and cortisone on the course of certain diseases of obscure pathogenesis [1] has stimulated interest in the effects of the drugs on ulcerative colitis. The present paper summarizes our experience with corticotropin in the treatment of 40 patients, and with cortisone in five patients, during the period of January, 1950 to June, 1951. Preliminary observations in smaller groups of cases have been presented elsewhere by us [2] and by others.[3] The results to date suggest that corticotropin may be a valuable adjunct in therapy and reverse dramatically the unfavorable progression of the disease. Cortisone, in the quantities used, appears to be considerably less effective.

PATIENTS AND METHOD OF STUDY

The diagnosis of ulcerative colitis was established on the basis of clinical history, proctoscopic and roentgen findings, and the meticulous laboratory exclusion of recognized pathogenic agents. Most patients had been under prolonged observation and their course prior to corticotropin administration was known. The severity of the disease was estimated as mild in six, moderate in 12, and severe or unusually serious in 22. All had undergone extensive and varied medical treatment without sustained improvement. A history of allergic disorders—ragweed hayfever, bronchial asthma—was elicited in seven patients, arthritis in seven, rheumatic fever in two, and glomerulonephritis in two. One patient previously had undergone resection of small bowel for regional enteritis. Ulcerative colitis had been present also in the mother, and in the brother, respectively, of two patients.

The effects of corticotropin were determined by carefully controlled clinical studies and by certain objective measurements. The general plan of investigation in 28 patients included the following stages: (1) an initial control period during treatment with rest, sedation, and bland diet; (2) the intramuscular injection of placebos (saline solution or distilled water) dispensed from corticotropin-labeled bottles and represented to the patients as such; (3) the administration of corticotropin, the transition from placebo to hormone being made without the knowledge of the patient; (4) a post-corticotropin placebo period, and (5) a return to original therapy. Placebos were omitted in 12 cases, chiefly because the severity of the illness necessitated early definitive therapy. As an additional control, two patients received amphetamine (benzedrine®) sulfate intramuscularly, 20 mg. daily, for four and eight days, respectively. Three patients received, respectively, (1) lipoadrenal extract (25 cc. in five days); (2) adrenal cortical extract (90 cc. in eight days); and (3) desoxycorticosterone acetate and ascorbic acid. Ascorbic acid alone was given by mouth to five patients in doses ranging from 400 mg. to 12 gm. daily. These medications did not demonstrably improve the course of the disease. The rectal mucosa was inspected proctoscopically at intervals of from five to seven

From the Frank Billings Medical Clinic, Department of Medicine, University of Chicago.

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Portions of this study have been presented previously at the 23rd Annual Meeting of the Central Society for Clinical Research, Chicago, Nov. 3, 1950, and at the Midwest Regional Meeting, American College of Physicians, Madison, Wis., Nov. 11, 1950.

days. Roentgen examination of the colon was repeated after treatment in 11 cases.

With one exception, all patients were treated in the hospital. Both the Armour and Wilson preparations of pituitary adrenocorticotropic hormone were administered.[4] The dosage varied, depending on individual requirements and the potency of different lots of corticotropin. Usually 25 (Armour) or 20 (Wilson) mg. were injected intramuscularly every six hours. Larger amounts were administered occasionally; subsequent reductions were determined by the individual clinical response. The total intake of corticotropin was less than 1 gm. in six patients; between 1 and 2 gm. in 18; between 2 and 3 gm. in eight; between 3 and 4 gm. in three; between 4 and 5 gm. in three, and exceeded 5 gm. in two patients; the largest quantity given was 7.92 gm. during a combined period of 126 days. The duration of treatment was less than three weeks in five; between three and four weeks in 12, and between 30 and 126 days in 23 patients.

TABLE 1.—*Clinical Response to Corticotropin (ACTH) in Chronic Ulcerative Colitis*

Severity of the Disease	No. of Patients	Response During Treatment				Sustained Remissions (35 Patients)
		Good	Moderate	Slight	None	
Mild.....	6	4	1	..	1	4
Moderate....	12	8	3	1	..	5
Severe.....	22	15	3	1	3	6
Totals.....	40	27	7	2	4	15

Eosinophile Response.—The circulating eosinophiles in the peripheral blood were measured every one to three days before, during, and after administration of corticotropin.[5] The initial counts were within the normal range in all but five cases. A definite, though variable, eosinopenia occurred during corticotropin therapy in 38 patients. The initial eosinophile counts served as a practical index of corticotropin effect. However, the eosinophile response did not correlate directly with the clinical result; some patients maintained their improvement despite rising eosinophile levels; others manifested little or no clinical response in the presence of significant eosinopenia. In 23 patients the eosinophile counts increased as the quantity of corticotropin was lowered. In several patients the eosinopenia during repeated courses of treatment was less pronounced than had been observed earlier. The "escape" phenomenon may reflect inadequate dosage, adrenal fatigue, or the development of a state refractory to corticotropin.

CLINICAL RESPONSE TO CORTICOTROPIN

Placebos.—The enthusiastic administration of placebos had no demonstrable beneficial effects. In one patient, who was fearful of corticotropin, the injection of placebos represented as corticotropin led to severe exacerbation of the diarrhea; symptoms subsided with the administration of corticotropin. The concealed transition from corticotropin to distilled water in several patients promptly resulted in recurrent diarrhea. The lack of significant clinical response to placebos was not anticipated and is presumptive evidence against the possible psychotherapeutic effects of corticotropin.

Effects of Corticotropin.—The clinical response during corticotropin was considered good in 27, moderate in seven, slight in two, and nil in four patients; beneficial effects of varying degree thus occurred in 36 of the 40 patients (Table 1). The remissions were prompt in 24 and gradual in 12 patients. Improvement was characterized by the subsidence of abdominal distress and rapid disappearance of the bloody diarrhea. The number of stools diminished in 36 patients and the consistency of the bowel movements improved in 34 (Chart 1). One patient enjoyed excellent health during 26 days without a bowel movement. Fecal impactions developed in six patients. Since bowel activity also may decrease during corticotropin therapy in patients without gastrointestinal disease or with diarrhea of functional origin, the effect is not specific for ulcerative colitis; however, the subsidence of diarrhea during corticotropin therapy in these patients was striking. The clinical improvement was no more complete than had been observed previously with other treatment, but it was more rapid and occasionally

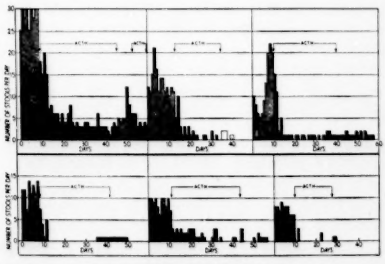

Chart 1.—Corticotropin (ACTH) in ulcerative colitis—disappearance of diarrhea in six patients (G. B., C. B., L. T., M. S., R. O., and W. P.) during corticotropin (ACTH) administration. Each square shows the course of one patient.

1. Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: The Effect of a Hormone of the Adrenal Cortex (17-Hydroxy-11-Dihydrocorticosterone: Compound E) and of Pituitary Adrenocorticotropic Hormone on Rheumatoid Arthritis: Preliminary Report, Proc. Staff Meet. Mayo Clin. **24**: 181, 1949. Thorn, G. W., and Others: The Clinical Usefulness of ACTH and Cortisone, New England J. Med. **242**: 783, 824, and 865, 1950.

2. Kirsner, J. B.; Palmer, W. L., and Klotz, A. P.: ACTH and Cortisone in Chronic Ulcerative Colitis: A Comparison of Clinical Effects, Proc. Central Soc. Clin. Res. **23**: 58, 1950. Kirsner, J. B., and Palmer, W. L.: ACTH in Ulcerative Colitis: Report of Progress, Gastroenterology **18**: 143 (May) 1951. Kirsner, J. B., in discussion on Halsted, J. A., and others: Clinical Effects of ACTH in Chronic Ulcerative Colitis, Proceedings of the Second Clinical ACTH Conference, ed. by J. R. Mote, Philadelphia, The Blakiston Company, 1951, Vol. 2, p. 500.

3. DuToit, C. H., and Bauer, W.: The Effect of ACTH on Ulcerative Colitis, Proceedings of the First Clinical ACTH Conference, ed. by J. R. Mote, Philadelphia, The Blakiston Company, 1950, p. 459. Dearing, W. H., and Brown, P. W.: Experiences with Cortisone and ACTH in Chronic Ulcerative Colitis, Proc. Staff Meet., Mayo Clin. **25**: 486, 1950. Rosmiller, H. R.; Brown, C. H., and Ecker, J. A.: Effect of ACTH on Non-Specific Ulcerative Colitis, Gastroenterology **17**: 25, 1951. Gray, S. J.; Reifenstein, R. W.; Young, J. C. G., and Benson, J. A., Jr.: The Use of ACTH in the Treatment of Ulcerative Colitis and Regional Enteritis, Proceedings of the Second Clinical ACTH Conference, ed. by J. R. Mote, Philadelphia, the Blakiston Company, 1951, vol. 2, p. 473. Gray, S. J.; Reifenstein, R. W.; Benson, J. A., Jr., and Young, J. C. G.: Treatment of Ulcerative Colitis and Regional Enteritis with ACTH: Significance of Fecal Lysozyme, A. M. A. Arch. Int. Med. **87**: 646 (May) 1951. Halsted, J. A.; Adams, W. S.; Sloan, S.; Walters, R. L., and Bassett, S. H.: Clinical Effects of ACTH in Ulcerative Colitis, Proceedings of the Second Clinical ACTH Conference, ed. by J. R. Mote, Philadelphia, The Blakiston Company, 1951, vol. 2, p. 489.

4. The Armour Laboratories, 1425 W. 42nd St., Chicago 9, and the Wilson Laboratories, Division of Wilson & Co., Inc., 4221 S. Western Ave., Chicago 9, very kindly provided some of the ACTH used in this study.

5. Randolph, T. G.: Differentiation and Enumeration of Eosinophils in the Counting Chamber with a Glycol Stain: A Valuable Technique in Appraising ACTH Dosage, J. Lab. & Clin. Med. **34**: 1696, 1949.

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dramatic. As one patient remarked, "ACTH accomplished in two days what other treatment required six or eight weeks to do." The appetite improved in 36 patients, and daily intakes of 3,500 to 4,500 calories were common; two young men consumed in excess of 8,000 calories per 24 hours. The ravenous appetite was in striking contrast to the dietetic problems encountered earlier in these patients. A sustained gain in weight was apparent in many instances after the discontinuance of corticotropin.

Among the four patients not responding to corticotropin, one had been admitted critically ill and subsequently was found to have had a perforation of the cecum with generalized peritonitis. Persistent emotional problems probably retarded clinical progress in three patients; one later underwent a partial colectomy. The complications of severe hypokalemia and probable sensitivity to corticotropin necessitated termination of therapy in two of this group. The latter case is of considerable interest. This patient, a 21-year-old woman with ulcerative colitis, early scleroderma, and rheumatoid arthritis of three years' duration, had improved elsewhere in June, 1950, during the administration of 1,005 mg. of corticotropin within approximately three weeks' time. Symptoms recurred five days later. The present treatment consisted of 1,360 mg. of Wilson's corticotropin administered during the period from May 1 to May 10, 1951. The dose had been increased to 200 mg. daily on May 6, but there was no significant eosinopenia. On May 10 severe angioneurotic edema of the face and extensive urticaria developed. These manifestations subsided promptly after the withdrawal of corticotropin and the administration of antihistaminic drugs. Subsequent scratch and intradermal tests revealed pronounced dermal sensitivity to both the Wilson and Armour preparations of corticotropin and to corticotropin of sheep origin (Armour). The patient had not known of any allergic tendencies prior to this episode. Similar reactions have been noted by Brown and Hollander [6] and others with corticotropin of pork origin; the substitution of beef corticotropin produced no allergic reactions.

Emotional conflicts also seemed to interfere with clinical progress in the two patients responding only slightly to corticotropin. Symptoms in one case partially subsided during the use of sulfaguanidine. The other patient subsequently improved during the daily intravenous administration of 20 mg. of corticotropin given over a period of four to eight hours in 500 to 1,000 cc. of 5% dextrose in distilled water.[7] The eosinophile count decreased significantly after each injection. The number of bowel movements diminished from 10 to between two and four daily, and improved in consistency; there was corresponding subjective improvement. The possibilities of intravenous corticotropin therapy in ulcerative colitis are being investigated further.

Temperature and Pulse.—The elevated temperature and pulse rate in 22 patients returned to normal levels within 12 to 18 hours after the initiation of corticotropin therapy. In one patient with a large abscess in the buttocks the temperature and pulse remained normal for approximately two weeks but then rose during the continued administration of corticotropin.

Emotional Reactions.—A sense of well-being developed in 32 patients; in 12 it approached a state of euphoria. These emotional upsurges seemed to accompany rather than precede the physical improvement. Conversely, the clinical response was not determined by the euphoric state, for many patients improved in its absence. However, in a disease such as ulcerative colitis the complex psychogenic and somatic interrelationships cannot be separated clearly. One patient remarked, "The emotional problems, everything, seem to vanish when my bowels are OK." Another commented, "I feel like a normal person again; I have cleaned my desk and am ready for school work." A third patient with very severe colitis stated: "ACTH has made me love life; it has taught me that I can be a human being when my bowel is under control. Whatever its physical effects, ACTH has had this great emotional impact." This striking response vanished after the withdrawal of the drug.

Insomnia and restlessness were noted by 18 patients. Emotional disturbances of the type generally associated with ulcerative colitis, though less obvious during corticotropin therapy, remained sufficiently prominent in seven patients as to retard clinical improvement. Seven persons appeared more disturbed emotionally during treatment; hypokalemia had developed in three of this group. One young man unaccountably committed suicide, though by his own appraisal he had improved considerably; the dose of corticotropin was relatively small and the serum electrolytes were normal. Corticotropin may conceal the overt manifestations of emotional conflict, but it does not seem to dissolve the conflict. Emotional disturbances usually persist after corticotropin therapy and may precipitate recurrence of the disease.

Proctoscopy.—Proctoscopy before treatment demonstrated in most instances edema, friability, bleeding, and granularity of the rectal mucosa with bloody fluid and mucopurulent exudate. The findings were considered severe in 29 patients, moderate in five, and mild in six. Improvement was noted in 34 of the 36 patients reexamined at frequent intervals; the change was pronounced in 20, moderate in nine, and slight in five. The earliest evidence of improvement, sometimes occurring within several days, was disappearance of the excess fluid and mucosal edema; the friability and bleeding subsided more gradually; the granularity persisted. Three or four weeks usually elapsed before the proctoscopic evidence of improvement was unequivocal.

Roentgen Observations.—Involvement of the colon was demonstrated roentgenologically in 32 of the 37 patients examined before treatment. The entire colon appeared diseased in 21 (including the terminal ileum in two, extensive ulceration in two, and stenosis in one); involvement extended to the hepatic flexure in six and to the splenic flexure only in five patients. Eleven patients were reexamined after corticotropin therapy. There was

6. Brown, E. M., Jr., and Hollander, J. L.: Allergy to ACTH and the Use of Beef ACTH, Proceedings of the Second Clinical ACTH Conference, ed. by J. R. Mote, Philadelphia, The Blakiston Company, 1951, vol. 2, p. 391.

7. Gordon, E. S.; Kelsey, C., and Meyer, E. S.: Adrenal Stimulation by Intravenous ACTH, Proceedings of the Second Clinical ACTH Conference, ed. by J. R. Mote, Philadelphia, The Blakiston Company, 1951, vol. 2, p. 30.

no change in eight; the involvement appeared less pronounced in three cases, including one patient in whom extensive ulceration of the left colon disappeared in a spectacular manner. Significant roentgen improvement in ulcerative colitis usually is not demonstrable until after prolonged remission of the disease [8]; the method, therefore, is not applicable to the study of the relatively early effects of corticotropin.

LABORATORY RESPONSE TO CORTICOTROPIN

The sedimentation rate initially was normal in seven, and elevated slightly or moderately in 27 patients. During corticotropin therapy the sedimentation rate was unchanged in 10 and decreased to normal in 17; it again rose after treatment in 11 of this latter group. The concentration of nonspecific hyaluronidase inhibitor in the blood serum was measured at frequent intervals in two patients.[9] The levels tended to decrease during corticotropin therapy; in one patient the pattern of response was similar to that observed in rheumatic fever.

Hyperactivity of the parasympathetic nervous system with resultant hypermotility of the bowel has been implicated in the pathogenesis of ulcerative colitis. The

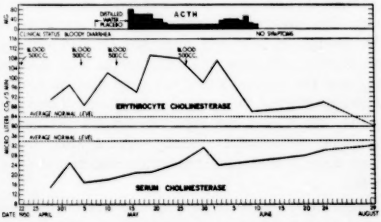

Chart 2.—Return to normal erythrocyte and serum cholinesterase levels during improvement in patient C. M. M., a man aged 22, who had ulcerative colitis for 1¾ years.

neurogenic hyperfunction may be accompanied with an increased concentration of acetylcholine and, correspondingly, cholinesterase at the myoneural junctions. Whereas serum cholinesterase parallels the state of nutrition, erythrocyte cholinesterase may reflect cholinesterase at the myoneural junctions. Measurements in our laboratory, utilizing the Warburg manometric technique, indicated consistently elevated values in active ulcerative colitis and a return to normal levels during improvement with corticotropin [10] (Chart 2).

The daily outputs of feces were measured before, during, and after treatment in 22 patients (18 men and four women). For this purpose, patients deposited all bowel movements directly into weighed glass jars contained in bedside commodes. Fecal outputs (grams per 24 hours) were excessive in almost all instances, and did not diminish during the administration of placebos. Fecal excretion decreased significantly during corticotropin therapy in 17 patients (Chart 3); the outputs

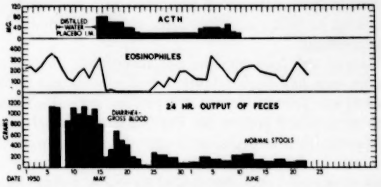

Chart 3.—Prompt and sustained improvement with administration of corticotropin (ACTH) in patient C. M. M.

again rose in nine after the discontinuation of treatment. Fecal nitrogen was measured continuously in 10 patients. As demonstrated previously,[11] the outputs in active ulcerative colitis are much higher than normal; nitrogen excretion in several cases of this series approximated 8 to 11 gm. per 24 hours. During corticotropin therapy the 24-hour outputs of fecal nitrogen decreased significantly in the 10 patients, although not always to normal levels (Chart 4); the concentration of nitrogen per gram of feces diminished to a lesser extent.

Lysozyme in the feces was measured in four patients. In accord with previous observations,[12] the outputs greatly exceeded the normal range. Decreases of varying magnitude were noted during corticotropin therapy. Similar trends may be observed during subsidence of the active disease with other therapy; hence, they do not appear specific for corticotropin.

Urinary Nitrogen.—The profound alterations in protein metabolism during corticotropin therapy are shown in part by an increased urinary excretion of nitrogen.

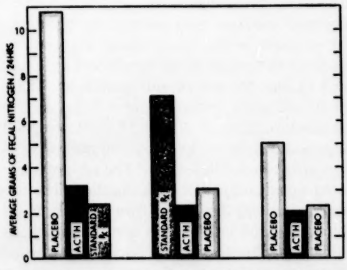

Chart 4.—Decreased output of fecal nitrogen during corticotropin (ACTH) administration in patients C. M. M., H. M., and L. T.

The degree of nitrogen loss is determined by several factors, including the responsiveness of the individual to adrenocortical stimulation and his metabolic state at the time of stimulation. Urinary nitrogen was measured in 11 patients. The daily outputs during corticotropin ranged from 20 to 30 gm., representing two to eight-fold increases above control levels. The excretion of nitrogen

8. Kirsner, J. B.; Palmer, W. L., and Klotz, A. P.: Reversibility in Ulcerative Colitis: Clinical and Roentgenologic Observations, Radiology **57**:1, 1951.

9. The analyses described in our paper were performed in the laboratory of Dr. Albert Dorfman, Department of Pediatrics, University of Chicago. Dorfman, A., and Moses, F. E.: Effect of Adrenocorticotrophic Hormone (ACTH) on Serum Hyaluronidase Inhibitor in Rheumatic Fever, Proc. Soc. Exper. Biol. & Med. **73**: 667, 1950. Schmith, K., and Faber, V.: Fall in Hyaluronidase Inhibition in Serum During Administration of Adrenocorticotrophic Hormone (ACTH), Acta endocrinol. **3**: 310, 1949.

10. Moeller, H. C.; Rider, A. J., and Kirsner, J. B.: Erythrocyte and Serum Cholinesterase in Ulcerative Colitis, Gastroent., to be published.

11. Kirsner, J. B.; Sheffner, A. L., and Palmer, W. L.: Studies on Amino Acid Excretion in Man: Chronic Ulcerative Colitis and Regional Enteritis, J. Clin. Invest. **29**: 874, 1950.

12. Meyer, K., and others: Lysozyme Activity in Chronic Ulcerative Colitis, Rev. Gastroenterol. **16**: 476, 1949.

was in direct proportion to the quantity of protein ingested (Chart 5). Two patients who consumed in excess of 8,000 calories daily, including 54 and 63 gm. of nitrogen, excreted the enormous quantities of 42 and 50 gm. of nitrogen per 24 hours. The nitrogen loss receded rapidly after the withdrawal of corticotropin; original levels usually were regained within several weeks. The nitrogen balance in 10 patients, as reflected by measurements of urinary and fecal nitrogen, was negative during corticotropin and positive after therapy was discontinued.

Uropepsin.—This proteolytic enzyme normally present in human urine probably is derived from the secretion of pepsinogen into the blood stream by the secreting peptic cells of the stomach.[13] Spiro and others [14] have demonstrated during the administration of corticotropin and cortisone a pronounced increase in the urinary content of this enzyme. The increase presumably reflects the physiological integrity of the gastric glands in response to adrenocortical stimulation or other stress.[15] The daily output of uropepsin in the urine was measured in 10 patients of the present series, utilizing a modification of the method described by Mirsky and others.[16] The outputs increased two to four-fold during corticotropin and often paralleled the urinary nitrogen (Chart 5). Similar but less pronounced changes were observed in five patients treated with cortisone and in a normal man studied for control purposes.

OTHER EFFECTS

Clinical.—Edema of varying magnitude developed in 38 patients. The use of a low sodium diet decreased the fluid retention but did not prevent it when large quantities of corticotropin were administered. The blood pressure rose temporarily in 21 cases. Brust and others [17] have concluded that the blood pressure response to corticotropin and cortisone is independent of sodium retention and that the vascular effects of these hormones are mediated by an humoral mechanism. Other changes included "mooning" of the face in 22, acne in 23, striae in five, brownish pigmentation of the skin in six (very prominent in one), hypertrichosis in 12, and buffalo-type obesity in five patients. One patient spontaneously described the softening of several operative scars. A peculiar and unexplained hyperemia of the fingernails developed in five patients and subsided gradually after the withdrawal of corticotropin. Eleven patients described a sense of warmth and excessive perspiration, especially during the night; 12 patients complained of increased flatulence and abdominal distention.

Creditor and others [18] have reported an inhibition of wound healing during corticotropin therapy. A tendency to suppurative complications has been noted by others. In the present series, furunculosis of the arm in one patient responded less promptly to penicillin during the administration of corticotropin then after the hormone was discontinued. An infected toe in another man healed more slowly than usual. An extensive abscess developed in the buttocks of a third; the lesion healed promptly after drainage, chemotherapy, and the withdrawal of corticotropin. Peritonitis secondary to perforation of the cecum was the cause of death in one patient; a tender mass had been palpated in the right lower abdominal quadrant on admission to the hospital and the perforation was thought to have occurred before corticotropin therapy; the rapid progression of the disease was completely unaffected by extensive antibiotic and supportive treatment. Pneumonia developed in one patient and rheumatic fever recurred in another after the completion of therapy; both conditions responded to standard management. Blood cultures in seven patients were negative.

Laboratory.—The serum electrolytes (carbon dioxide, pH, chloride, sodium, potassium) were measured at intervals of seven to 10 days. The serum CO_2 increased in 33 of 38 patients, exceeding 40 mM./L. in five (normal—20 to 30 mM./L). Hypochloremia developed in 12 patients. The serum potassium diminished in seven patients; in two after profuse diuresis induced by mercurial diuretics. The hypokalemia was severe in four patients and was accompanied with characteristic electro-

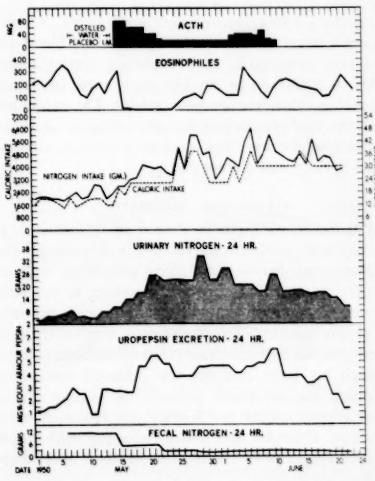

Chart 5.—Caloric and nitrogen intake, urinary nitrogen and uropepsin, and fecal nitrogen during corticotropin (ACTH) administration in patient C. M. M.

cardiographic changes; two of this group required potassium chloride intravenously. Since potassium chloride by mouth intensified the diarrhea in several patients, this

13. Broh-Kahn, R. H.; Podore, C. J., and Mirsky, I. A.: Uropepsin Excretion by Man: Uropepsin Excretion by Healthy Men, J. Clin. Invest. **27**: 825, 1948. Podore, C. J.; Broh-Kahn, R. H., and Mirsky, I. A.: Uropepsin Excretion by Man: Uropepsin Excretion by Patients with Peptic Ulcer and other Lesions of the Stomach, ibid. **27**: 834, 1948.

14. Spiro, H. M.; Reifenstein, R. W., and Gray, S. J.: Effect of Adrenocorticotropic Hormone Upon Uropepsin Excretion, J. Lab. & Clin. Med. **35**: 899, 1950.

15. Mirsky, I. A.; Kaplan, S., and Broh-Kahn, R. H.: Pepsinogen Excretion (Uropepsin) as an Index of the Influence of Various Life Situations on Gastric Secretion, A. Res. Nerv. & Ment. Dis., Proc. (1949) **29**: 628, 1950.

16. Mirsky, I. A.; Block, S.; Osher, S., and Broh-Kahn, R. H.: Uropepsin Excretion by Man: Source, Properties and Assay of Uropepsin, J. Clin. Invest. **27**: 818, 1948.

17. Brust, A. A.; Ransohoff, W., and Reiser, M. F.: Blood Pressure Responses to ACTH and Cortisone in Normotensive and Hypertensive Subjects in Resting State and During Autonomic Blockade with Tertaethylammonium chloride, read before the Annual Meeting of the American Society for Clinical Investigation, April 30, 1951.

18. Creditor, M. C.; Bevans, M.; Mundy, W. L., and Ragan, C.: Effect of ACTH on Wound Healing in Humans, Proc. Soc. Exper. Biol. & Med. **74**: 245, 1950.

medication was not prescribed routinely. The disturbances in serum electrolytes subsided gradually when the corticotropin was decreased in dosage or discontinued. Greenman and others [19] have suggested the use of a low sodium milk regimen to prevent edema and lessen the changes in electrolytes during corticotropin and cortisone therapy.

TABLE 2.—*Relapses After Corticotropin (ACTH) Administration*

Pre-ACTH Severity		Severity of Relapse		Time Interval	
Severity of the Disease	No. of Patients	Milder	Same	Prompt	3 to 6 Mo.
Mild	1	1	..	..	1
Moderate	7	4	3	4	3
Severe	12	9	3	4	8
Totals	20	14	6	8	12

Transitory hyperglycemia developed in six patients; glycosuria occurred in only two. The white blood cell count rose temporarily in 23 patients, approximating 18,000 to 20,000 in seven. The erythrocyte count and hemoglobin value frequently decreased. The concentration of the total plasma proteins often diminished during corticotropin therapy; the albumin-globulin ratio was normal initially and did not change.

WITHDRAWAL SYNDROME

"Withdrawal" symptoms developed within one to three days after corticotropin therapy in 20 patients. The syndrome consisted of fever, chilly sensations, malaise, muscular cramps, and decreased appetite; it was mild in seven, moderate in six, and severe in seven patients. The serum calcium and phosphorus were normal in several patients. Symptoms subsided within several days. Although no direct evidence was adduced concerning this point, the syndrome probably is attributable to relative adrenocortical insufficiency and excessive losses of sodium, chloride, and water following withdrawal of corticotropin: other chemical aberrations may be involved.

FOLLOW-UP OBSERVATIONS

Two patients died, one by a most unexpected and unexplainable suicide while improving; a similar occurrence has been reported after the use of cortisone.[20] The other patient (who received a total of 1,675 mg. corticotropin in 17 days) succumbed to perforation of the colon and generalized peritonitis; necropsy revealed malnutrition, severe active colitis, perforation of the cecum, and peritonitis; the adrenal glands were enlarged to three times normal size and the cortices contained many hemorrhages.

19. Greenman, L.; Danowski, T. S.; Tarail, R.; Peters, J. H.; Wiegand, F., and Mateer, F.: Studies of Prevention of Some of the Toxic Effects of Prolonged Cortisone and ACTH Therapy, read before the 43rd Annual Meeting of the American Society for Clinical Investigation, April 30, 1951.

20. Borman, M. C., and Schmallenberg, H. C.: Suicide Following Cortisone Treatment, J. A. M. A. **146**: 337 (May 26) 1951.

21. Gordon, G. L.: Development of Refractory State to Adrenocorticotrophic Hormone, Endocrinology **45**: 571, 1949.

22. Elkinton, J. R., and others: Effects of Pituitary Adrenocorticotropic Hormone (ACTH) Therapy, J. A. M. A. **141**: 1273 (Dec. 31) 1949.

23. Holbrook, W. P.; Hill, D. F.; Stephens, C. A. L., Jr., and Johnson, R. B.: Long-Term ACTH Administration in Rheumatoid Arthritis, Proceedings of the Second Clinical ACTH Conference, Chicago, Dec. 8-9, 1950, vol. 2, p. 599.

The period of observation in 38 patients after corticotropin therapy has extended up to four months in 13 patients, eight months in 16, and for 12 months or more in nine. Treatment has consisted of moderate activity, a bland diet, and sedatives; sulfaguanidine has been prescribed frequently. The disease has remained quiescent in 15 patients. Symptoms have recurred in 20 patients (Table 2). Relapses were milder than previously in 14 patients, and of their original severity in six. The three remaining patients had not responded to corticotropin. Sulfaguanidine, 8.0 gm. daily, has seemed surprisingly beneficial in 14 of 17 patients so treated for recurrent symptoms. The course of the disease after the cessation of corticotropin therapy in the 38 patients, notwithstanding relapses, has been rated as less severe in 27 and unchanged in 11; the majority have resumed a useful life (Table 3).

REPEATED COURSES OF ACTH

Nine patients received more than one course of corticotropin, distributed as follows: two courses in six, three courses in two, and eight courses in one. In two patients the response remained slight. Favorable results were noted in seven, but were temporary in five of this group. Increasing beneficial effects were observed in two patients. In several cases the eosinopenia became less pronounced with repeated courses in treatment. The patient given corticotropin on eight occasions earlier had improved dramatically and was able to leave the hospital after prolonged hospitalization; symptoms subsequently increased but the clinical response to the eighth course of corticotropin was slight despite a definite eosinopenia. These observations suggest the development of a refractory clinical state to corticotropin in some patients. Gordon [21] and Elkington and others [22] have commented upon this possibility. Holbrook [23] has obtained a good clinical response to corticotropin derived from pigs after lack of response to beef corticotropin in patients with rheumatoid arthritis. As noted earlier in this report, the intravenous administration of corticotropin may be effective in patients not reacting to intramuscular injections.

TABLE 3.—*Clinical Course After Corticotropin (ACTH) Administration*

Severity of the Disease	No. of Patients	Duration of Follow-up			Subsequent Course	
		4 Mo.	8 Mo.	12 Mo.	Improved	Unchanged
Mild	6	3	2	1	5	1
Moderate	12	4	4	4	8	4
Severe *	20	6	10	4	14	6
Totals	38	13	16	9	27	11

* Two deaths.

LONG-ACTING CORTICOTROPIN

Long-acting corticotropin (Armour) was administered in single daily doses to eight patients with recurrent symptoms; the total dose varied from 260 to 2,475 mg. The eosinopenia was more variable and transitory and the clinical response was less pronounced than with four daily injections of regular corticotropin. The clinical results appeared moderately good in two, slight in three, and nil in three patients. Newer long-acting preparations of corticotropin and larger doses may prove more effective.

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CORTISONE

The effect of cortisone in chronic ulcerative colitis was investigated in five patients. The total dosages ranged from 1,900 mg. in 10 days to 4,525 mg. in 20 days. The clinical response was pronounced in one, slight in two, and nil in three instances (one patient received two courses). Symptoms recurred promptly in those patients initially manifesting improvement. The eosinophile counts diminished in three cases. The proctoscopic changes were slight; the roentgen appearance of the colon was unaltered after treatment in the three patients examined. The trends in serum electrolytes, urinary nitrogen, and uropepsin and fecal nitrogen were similar to but less pronounced than with corticotropin therapy. The administration of 2,125 mg. cortisone in 16 days to a mild diabetic resulted in a pronounced hyperglycemia, persisting for several months. There were no other untoward effects. One patient with moderately severe colitis improved rapidly during the oral ingestion of 3,000 mg. of cortisone in eight days; the eosinophile count decreased slightly, and the urinary nitrogen and uropepsin rose. The substitution of a cholesterol solution placebo flavored to resemble the taste of cortisone resulted in the prompt recurrence of symptoms. The readministration of cortisone, 1,350 mg. by mouth, followed by 1,500 mg. intramuscularly, was ineffective. Corticotropin, given during the night to conceal the identity of the medication, induced a dramatic disappearance of symptoms (Chart 6). This remission was maintained until the development of a severe upper respiratory infection and recurrent emotional stress. Three patients at separate times received both corticotropin and cortisone; corticotropin was vastly superior in inducing remissions. Perhaps larger quantities of cortisone will prove more effective.

COMMENT

The spontaneous remissions and exacerbations characterizing the natural history of ulcerative colitis necescitate the most careful scrutiny of any new therapy for this puzzling illness. Prolonged study of more patients will be required to evaluate conclusively the effects of corticotropin. The present observations, nevertheless, suggest that adequate quantities of potent corticotropin preparations may induce striking remissions. Many patients had been chronically and seriously ill; in some surgical intervention had been recommended elsewhere. The lack of response to conventional therapy in the hospital, the complete ineffectiveness of placebos, and the significant relief of symptoms accompanying the administration of corticotropin would seem to exclude psychotherapeutic effects. The improvement was no more complete than had been observed previously in the absence of corticotropin, but it was more rapid and striking. The optimum dosage of hormone varied, depending on the severity of the colitis, unexplained individual differences in response to corticotropin, and fluctuations in potency of the drug. The administration of moderately large amounts for perhaps six to eight weeks or longer appeared to be more effective than brief courses of treatment. The eosinophile counts decreased appreciably in all but one patient, indicating adequate adrenocortical stimulation. Impairment of the reserve function of the adrenal cortex has been observed occasionally in chronic ulcerative colitis, probably as a consequence of the long-continued stress.[24] The eosinophile count was a useful guide initially in establishing a presumably effective dosage of corticotropin, but the degree of eosinopenia apparently did not determine the clinical result.

Subjective manifestations of improvement included subsidence of abdominal discomfort and bloody diarrhea, increased appetite, and a striking sense of well-being; the clinical transformation in some cases was remarkable. The emotional response seemed to accompany the improvement in physical condition, rather than precede it, as in the case of McKell and others [25] treated with cortisone; however the two factors undoubtedly influenced each other. Objective evidences of remissions such as fewer stools and improved consistency of bowel movements are not specific for ulcerative colitis. It has been suggested that corticotropin may suppress colonic hypermotility by inhibiting the formation of acetylcholine [10]; studies of the motility of the small and large intestine during corticotropin therapy might be of interest in this connection. The proctoscopic manifestations did not correlate chronologically with the clinical response, but subsided usually within three or four weeks.

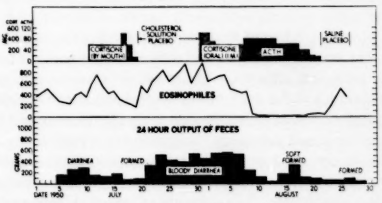

Chart 6.—Variable effects of cortisone. Prompt clinical improvement with corticotropin (ACTH) administration in patient W. K., a man aged 33, who had ulcerative colitis for seven years.

The prompt disappearance of mucosal edema and of bloody fluid from the rectum was striking. These changes may be related to Ebert's [26] observations that cortisone maintains arteriolar tonus and the integrity of vascular endothelium during experimentally induced infection in the rabbit.

The laboratory evidences of improvement—decline in sedimentation rate and in the serum concentrations of nonspecific hyaluronidase inhibitor—are observed also in the remissions of rheumatic fever and other diseases. The reduction in erythrocyte cholinesterase from high to normal levels similarly may be a nonspecific indicator of clinical remission. The decreases in fecal nitrogen and lysozyme likewise accompany the healing of ulcerative colitis during therapy other than corticotropin; hence, they do not constitute specific hormonal effects. The fecal outputs of lysozyme reflect the activity of the

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colitis and thus may be utilized as a measure of clinical response. The rapid production of lysozyme by the experimentally injured bowel suggests that it is an early accompaniment of tissue inflammation and necrosis.[27]

Corticotropin, though of value in inducing remissions, does not cure ulcerative colitis. Symptoms returned either promptly or within several months after the discontinuance of therapy in 20 patients. With the further passage of time symptoms may recur in all cases initially manifesting improvement. The relapses generally were milder than usual and the subsequent course of the disease in many patients, despite recurrences, has seemed less severe than before corticotropin administration. Repeated treatment with corticotropin has induced sustained remissions to date in two patients and was helpful temporarily in five. Currently available longer-acting corticotropin produced no striking effects. On the other hand, the prolonged administration of one or two daily doses of regular corticotropin was beneficial in one patient.

The alterations in protein metabolism and the undesirable clinical and chemical reactions encountered during corticotropin therapy in patients with ulcerative colitis are identical with those observed in normal control subjects and in patients with a wide variety of diseases.[28] Except for severe hypopotassemia, these side effects did not present serious problems and they subsided without further treatment after the withdrawal of corticotropin. On the other hand, the tendency in several patients to delayed healing of suppurative lesions and the occurrence of pneumonia and recurrent rheumatic fever represent potentially serious complications; in a nutritionally depleting disease such as ulcerative colitis the problem assumes added importance. The administration of sulfonamides and antibiotics concomitantly with corticotropin may diminish the tendency to suppurative complications. Diminution of the excessive loss of nitrogen, perhaps by the use of high potassium diets,[29] also would appear to be highly desirable.

The nature of the remissions accompanying corticotropin therapy and the implications contained therein are not obvious at present; specific and nonspecific mechanisms may be involved. The recurrences after the discontinuation of corticotropin indicate that the basic cause or causes have not been eliminated. There is no evidence that dysfunction of the pituitary or adrenal gland plays an etiologic role in ulcerative colitis. The remarkable and varied metabolic, endocrine, chemical, enzymatic, and cytologic effects of corticotropin have not yet been fully elucidated.[30] Most of the clinical and laboratory signs of improvement described in this study are observed also during the spontaneous remissions of this disease and other diseases. Alterations in enzyme systems, the hypersensitive state, antigen-antibody relationships, tissue permeability, and perhaps in the mechanisms involving hyaluronidase[31] may be postulated but supporting evidence is not yet available. The remissions during corticotropin treatment suggest possible identification of ulcerative colitis with the so-called collagen diseases. The prompt reversibility of the process would be compatible with the concept of changes in the ground substance of the connective tissue of the rectum and colon, rather than in the formed elements. Investigation of this problem now is in progress. Preliminary results, indeed, suggest certain similarities between ulcerative colitis and the collagen diseases.

The capacity of corticotropin to induce remissions, albeit temporary, and to halt unfavorable progression of the disease stimulates further interest in the pathogenesis of ulcerative colitis and renews hope for its ultimate control.

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SUMMARY

The effects of corticotropin (ACTH) in chronic ulcerative colitis were studied in 40 patients. The disease was classified as mild in six, moderate in 12, and severe in 22. The course was not benefitted demonstrably by placebos of saline solution or distilled water, represented to the patients as corticotropin, or by the administration of other adrenal hormones, amphetamine (benzedrine*) sulfate, and ascorbic acid. The clinical response during administration of corticotropin was considered good in 27, moderate in seven, slight in two, and nil in four patients. Administration of moderately large quantities of corticotropin for six to eight weeks was more effective than brief periods of treatment. Improvement was characterized by the disappearance of abdominal distress and bloody diarrhea, prompt decline in fever, pronounced sense of well-being, better appetite, and by the gradual subsidence of proctoscopic evidences of the disease. The eosinophile response did not consistently correlate with the clinical result, but the initial counts served as a practical index of corticotropin's effect. The improvement was no more complete than had been observed previously with other treatment, but it was more prompt and occasionally dramatic.

Laboratory evidences of remission included pronounced decrease in the excessive fecal outputs, fecal nitrogen, and lysozyme. The sedimentation rate, erythrocyte cholinesterase, and the serum nonspecific hyaluronidase inhibitor tended to diminish from high to normal levels. The urinary excretion of nitrogen and uropepsin increased temporarily.

The features of Cushing's syndrome, edema, hypertension, characteristic alterations in serum electrolytes, insomnia, flatulence, "withdrawal" symptoms, and other side effects occurred in this series of patients with ulcerative colitis as in other diseases.

Among the four patients not benefited by corticotropin, one died of perforation of the colon and peritonitis, probably antedating therapy. One patient, after having responded well to corticotropin one year earlier, during a second course of treatment acquired severe angioneurotic edema and urticaria; pronounced dermal sensitivity

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to pork corticotropin was demonstrated. One patient later responded to sulfaguanidine, and the fourth underwent a partial collectomy. Among the 36 patients manifesting some degree of improvement during corticotropin therapy, one unaccountably committed suicide. The remissions have been sustained to date in 15 patients. Symptoms have recurred in 20. Relapses generally have been milder than usual and have responded to diet, sedation, and sulfaguanidine. Repeated treatment with corticotropin was helpful in seven patients, but only temporarily in five of this group; in several the eosinopenia and clinical response were less pronounced than had been observed earlier. Currently available long-acting corticotropin did not produce striking results. In general, the course of the disease, notwithstanding recurrences, has seemed less severe in 27 patients. In five patients with chronic ulcerative colitis cortisone appeared to be considerably less effective than corticotropin.

CONCLUSIONS

1. Corticotropin (ACTH) does not cure ulcerative colitis but frequently induces striking remission of the disease.

2. Similar clinical improvement may occur without corticotropin but usually is less rapid.

3. Relapses are frequent, but thus far they seem less severe.

4. The mechanism of the induced remissions is not yet known.

950 E. 59th St.

DEGENERATIVE JOINT DISEASE OF THE HIP

RELIEF OF SYMPTOMS FOLLOWING CORTISONE THERAPY

Ralph H. Boots, M.D., L. C. Yen, M.D., K. J. McMorrow, M.D.
and
Charles Ragan, M.D., New York

Degenerative joint disease is a manifestation of aging, the result of the wear and tear of living on articular structures. Pathologically, there is a change in the articular cartilage leading to fibrillation of the cartilage followed by eburnation of bone and overproduction of bone exostoses. When the damaged joint is in an abnormal position, acute symptoms may result from acute or sustained trauma following normal structural stress and strain, and during the acute phase an inflammation of the synovia is usually seen. In all instances, there is a certain element of overproduction of connective tissue manifested by granulation tissue in the form of pannus. Since we have felt that hyperadrenalism induced by corticotropin (ACTH) or cortisone may interfere with inflammatory reactions in the connective tissue and delay the turnover of granulations,[1] it was decided to evaluate the effect of cortisone on degenerative joint disease. Many forms of this disease are available for study, but, in most instances, the course of these articular lesions is variable and is influenced by many nonspecific factors. However, in one instance of degenerative joint disease—malum coxae senilis (degenerative joint disease of the hip)—the course is progressive, and symptoms are usually sustained and are not modified by simple palliative measures. For these reasons we have treated a group of patients suffering from malum coxae senilis with cortisone acetate,[2] obtaining what we consider to be favorable results comparable in degree to that reported in rheumatoid arthritis.[3] In a group of patients past middle age, the dangers of administering cortisone, such as thromboembolic phenomena and salt and water retention with congestive failure, were fully realized. On the other hand, all of these patients were miserable with hip pain and considering surgery for relief. The risk of cortisone did not seem any greater than that of surgery.

Eleven patients, five men and six women, were treated. Their ages varied from 54 to 82 years. In four patients the right hip only was involved, in three patients the left only, and in four patients there was an involvement of both hips. The treatment schedule followed was 100 mg. of cortisone every eight hours for the first 24 hours, and, following this, 100 mg. daily for a period of five to 17 days. In most of the patients, very little subjective improvement was noticed during the first four days of administration of the drug. Marked subjective improvement occurred by the seventh day in 10 of the 11 patients. They were then discharged from the hospital and continued with doses varying from 50 to 100 mg., three times a week. The patients were not confined to bed, and they were encouraged to go through as much of their daily activities as compatible with confinement in a hospital and were given supervised resistive exercises to the affected joints daily. The dosage and clinical improvement are shown in the Table. In seven patients the range of motion of the involved joints was measured by one of us before the beginning of their treatment, and again before they left the hospital. In these seven there was an increase in range of motion of the affected joints. In

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From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the Edward Daniels Faulkner Arthritis Clinic of the Presbyterian Hospital, New York.

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most instances increase in range of motion took place only after pain on activity was reduced.

This group of elderly people tolerated cortisone in the amounts given as well as the average patient. Insomnia was a disagreeable feature in three of the 11. In two of them it occurred during the first few days of treatment only. In the third the insomnia was so marked that the hormone was discontinued after two weeks. In two patients a transient glycosuria developed, and one patient seemed somewhat hyperactive during the initial phase of hormone treatment and a peculiar twitching of the mouth developed. These deviations from the normal disappeared while on the lowered maintenance dosage. The one patient who did not have an excellent result was a man aged 56 who had involvement of both hips probably secondary to osteitis pubis subsequent to prostatectomy. Although an increase in the range of motion of the hips was noted, there was no change in the pain or stiffness, and we considered that he had gained insufficient improvement to warrant a continuing dosage.

We have been able to follow eight of the 11 patients for nine months. Two were lost to follow-up and one received no benefit. Five of the eight patients continue to receive cortisone, the dosage varying from 50 to 75 mg. daily by mouth. The hormone was discontinued in two patients because of the appearance of congestive failure manifested by peripheral edema. The third discontinued the hormone in the second month of therapy during an episode of abdominal pain and diarrhea. Partial improvement has been maintained in this patient.

Dosage and Clinical Improvements of Patients

Patient	Age and Sex	Hip Joint Involved	Duration of Symptoms	Initial Course of Cortisone	Untoward Symptoms	Subjective Improvement (Pain and Stiffness) Following Initial Treatment	Continuing Dosage Used, Mg.	Remarks
E. S.	61-F	Left	3 yr.	850 mg. 7 days	None	Marked	75 (3 times a week)	Subjective relief marked
E. G.	72-F	Left	14 mo.	1,000 mg. 12 days	None	Marked	100 (2 times a week)	
J. G.	75-M	Right	5 mo.	800 mg. 8 days	Insomnia	Marked	50 (daily) 100 (2 times a week)	(Discontinued because of insomnia)
M. M.	70-F	Right	10 yr.	1,200 mg. 9 days	Moderate insomnia—4 nights	Marked	100 (3 times a week) (oral)	
J. C.	56-M	Both	3 yr.	1,100 mg. 8 days	None	No change	Insufficient improvement to warrant continuing dosage	
K. S.	82-F	Right	20 yr.	1,100 mg. 9 days	Hyperactive—2 weeks	Marked	50 (3 times a week)	
C. H.	55-M	Both	8 yr.	1,100 mg. 8 days	Glycosuria—2 days	Marked	500 (weekly)	Cortisone stopped after 8 days; two weeks later "slipped back 50%" and cortisone again given with relief
E. H.	69-F	Right	10 yr.	875 mg. 8 days	Glycosuria—2 days	Marked	75 (3 times a week)	Cortisone stopped because of intermittent enteritis
J. F.	68-M	Both	10 yr.	1,900 mg. 19 days	Mild insomnia	Marked	.....	No maintenance; relapsed after 3 wk.
A. B.	54-F	Both	8 yr.	1,000 mg. 8 days	Insomnia	Marked	100 (3 times a week)	Kept only in fair remission
R. L.	73-M	Right	5 yr.	700 mg. 5 days	None	Marked	375 (weekly)	Maintained 50% improvement; increase in abduction maintained

COMMENT

As in all instances of degenerative joint disease, when the joint has been injured or exposed to excessive trauma, the changes associated with wear and tear appear at an earlier age. One of the patients (C. H.) is believed to have had Legg-Perthes disease (osteochondrosis of capitular epiphysis) of both hips as a child, since he was placed on bed rest with the later use of braces in his first decade of life, but details of this illness are not available.

The pathway by which the pain and limitation of motion in degenerative joint disease are beneficially modified by the induction of minimal hyperadrenalism is not clear. We have supposed that the amelioration of symptoms following this procedure in rheumatoid arthritis might be related to a decreased reactivity of the connective tissue.[1] This hypothesis has been based on studies done in animals and man, whereby the repair of traumatized (surgical wound) connective tissue progressed more slowly when hyperadrenalism was induced. The decrease in rate of repair could be correlated with the amount of hyperadrenalism induced. With marked hyperadrenalism, repair processes for a time were brought to a complete standstill. With minimal degrees of hyperadrenalism, repair took place almost normally, and delay, if present at all, required careful rebiopsy techniques in order to be demonstrated. Histologically, once fibroblasts have been laid down, healing with deposition of ground substance and growth of blood vessels has progressed at the usual rate. We therefore have suggested that the inhibition of connective tissue growth during hyperadrenalism rests at the prefibroblast level. Although the actual demonstration of maturation from stem cell (or histiocyte) to fibroblast has not been clearly defined, it is agreed by most that the precursor of the fibroblast is this particular cell called by many names, such as stem cell, histiocyte, macrophage, or clasmatocyte. This cell presumably is a member of the reticuloendothelial system, and it is apparent that one of the major cellular effects of induced hyperadrenalism is a depression of the reactivity of this system. Thus, to our original concept that during the hyperadrenal state the reactivity of the connective tissue was depressed, a corollary may be added that this depression is related to or caused by a depression of the reticuloendothelial system, one com-

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ponent of which acts as the precursor of the connective tissue system in repair as well as in its dynamic turnover.

With this concept in mind, some insight into the mechanism involved in the amelioration of the symptoms of degenerative joint disease by cortisone administration may be proposed. In degenerative joint disease, there is an element of proliferating connective tissue manifested by the presence of granulations. From the above discussion, it is apparent that these granulations will not be modified during the hyperadrenal state save over a long period, since the life span of the mature connective tissue cell apparently is quite prolonged. The patients described noted improvement promptly, which would imply that the effect is at the macrophage level.

There has been much speculation concerning the "anesthetic effects" of cortisone and corticotropin. This has not been substantiated by controlled experiments on pain induced by several different stimuli.[4] There is a possibility that the observed effect in these patients was related to the euphoria, or increase in sense of well-being, but by and large this group of patients showed no obvious trend in this direction.

The widespread effects of cortisone and corticotropin described in recent years involving many systems such as the central nervous system,[5] antibody production,[6] antipyresis,[7] poor localization of inflammation,[8] make it seem unlikely that this effect on degenerative joint disease is purely one of anesthesia or of one comparable to topectomy, whereby pain is noted but is of no concern to the patient.

SUMMARY AND CONCLUSIONS

Eleven patients with degenerative joint disease of the hip were treated with cortisone, with marked subjective improvement resulting in 10 patients. An increase in range of motion of the hip, to a greater or lesser degree, occurred in all patients in which this was carefully evaluated.

Very few untoward symptoms were seen initially in this group of patients despite the fact that they were of the older age group. In general, the dosage required to obtain improvement is comparable to the amount needed for a patient with mild rheumatoid arthritis.

However, prolonged continuous hormonal administration was not practical in all cases. Cortisone was discontinued in five of 10 patients noting beneficial effects for various reasons. Thus, after nine months, only five of the original 11 patients continue to receive the hormone.

We fully realize the small number of cases studied, but submit this as a preliminary report.

620 W. 168th St.

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CORTISONE IN THE TREATMENT OF OSTEOARTHRITIS OF THE HIPS

Charles Y. Brown, M.D., Ralph A. Jessar, M.D.
and
Joseph Lee Hollander, M.D., Philadelphia

Although the literature on cortisone in the therapy of various diseases has become voluminous, little has been said concerning its use in degenerative joint disease (osteoarthritis). This is particularly true with regard to degenerative joint disease of the hips, so-called malum coxae senilis. There have been several encouraging reports on the efficacy of corticotrophin (ACTH) or cortisone in other forms of degenerative joint disease.

Hench and others [1] reported a patient with degenerative joint disease of the left knee, who received cortisone for the treatment of leukemia cutis. The pain and stiffness in the knee was ameliorated and remained improved when the patient last was seen, a month later. Thorn and others [2] described marked alleviation of symptoms in a patient who had generalized degenerative joint disease with involvement of both hips. Therapy in this case consisted of 40 mg. of corticotrophin daily in divided doses for seven days. Dale [3] described dramatic improvement in two cases with this drug, but, from the data supplied, it is not absolutely clear that the latter were cases of pure degenerative joint disease.

In a recent talk, Boots [4] described beneficial effects in 10 of 11 patients with osteoarthritis of the hips on cortisone therapy. Our previous experience with three similarly afflicted patients receiving cortisone was not in accord with the above. We decided, therefore, to investigate a larger series. The results are the basis of this paper in which eight patients with osteoarthritis of the hips who were treated with cortisone acetate are discussed. The doses of cortisone used for all patients were deemed sufficient to have controlled even a severe rheumatoid process.

The eight patients selected were chosen on the basis of their reliability as witnesses. Although each was aware that she was receiving cortisone, the drug was adminis-

Dr. Brown in now in London, Ont., Canada.

Dr. Jessar is now at Presbyterian Hospital, New York.

Fellow in Rheumatology of the Canadian Arthritis and Rheumatism Society (Dr. Brown).

From the Arthritis Section, Department of Medicine, Hospital of the University of Pennsylvania.

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tered in a noncommittal manner. Leading questions were avoided as much as possible in evaluating the subjective response.

In Table 1 are summarized some of the salient facts about each of the eight patients. It will be noted that seven are female and one male. Cases 1, 2, 4, and 8 will be discussed in more detail.

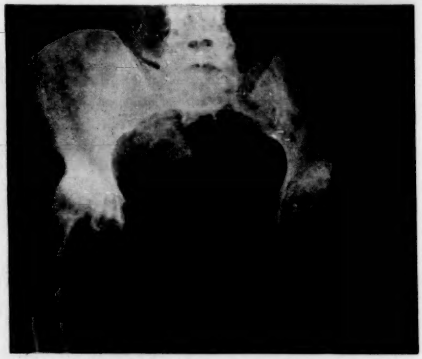

Fig. 1.—X-ray showing marked narrowing of the joint space in both hips and sclerosis of the femoral heads and acetabula.

REPORT OF CASES

CASE 1.—B. B. was a 58-yr.-old white woman whose chief complaint was severe pain in both hips when walking. This had been increasing for eight years and had progressed to such an extent that ambulation even with two canes was painful and slow. Pain and stiffness of lesser degree were present in the knees and lower spine. Acetylsalicylic acid (aspirin) in doses of 40 to 60 grains (2.6 gm.) daily was required for temporary relief.

This florid, obese woman weighed 174 lb. (78.9 kg.). There was marked increase in lumbar lordosis. Abduction and external rotation of the hips were moderately restricted by muscle spasm. X-ray studies showed marked narrowing of the joint space in both hips, with sclerosis of the femoral heads and acetabula (Fig. 1). There were also advanced hypertrophic changes in the lumbar part of the spine and marked narrowing of several intervertebral spaces. The blood cell count, Kline and Kolmer tests, urinalysis, and albumin-globulin ratio were normal. The sedimentation rate was 36 mm. in one hour (Wintrobe). The reason for the elevation of the sedimentation rate was not apparent.

A lumbrosacral support was fitted, with considerable relief from back pain, and the canes were replaced by crutches for walking. Concomitantly, 1.5 gm. of cortisone acetate was given by injection during a 15-day period, along with daily treatment in a Hubbard hydrotherapy tank. The initial dose was 300 mg., which was then reduced to 200 and 100 mg., and finally to 75 mg., per day. There were no detectable side effects, and indeed, the patient lost 8 lb. (3.6 kg.) in weight on a 1,200-calorie low-salt diet.

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3. Dale, M.: Treatment of Osteoarthritis with ACTH, J. Michigan M. Soc. **49**: 1068-1069 (Sept.) 1950.

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There was no subjective or objective evidence of improvement as determined by the amount of pain on walking and the range of motion in the hips. The pain in the knees was lessened, but certainly not more than was anticipated for any hospitalized patient. The lumbrosacral pain had abated even before cortisone therapy was instituted. The sedimentation rate remained unchanged at 36 mm. in one hour (Wintrobe).

CASE 2.—M. H. was a 71-yr.-old white woman who had experienced increasing pain in her hips for the past seven years. This pain had become so severe that she had been obliged to use first canes, then crutches, in order to walk.

The patient weighed 144 lb. (65.3 kg.). The hips were moderately limited in all movements by pain and spasm. There were several symptomatic Heberden's nodes on the terminal interphalangeal joints on both hands, and the knees showed some lateral instability. X-rays of the hips (Fig. 2) disclosed marked degenerative changes with joint narrowing and bone sclerosis. The entire spine and both knees showed advanced hypertrophic changes, and there was degeneration of many intervertebral disks. The blood count, Kline and Kolmer tests, urinalysis and albumin-globulin ratios were within normal limits, and the sedimentation rate was 26 mm. in one hour (Wintrobe).

TABLE 1.—*Salient Facts About Patients*

	Sex	Age	Duration of Symptoms, Yr.	Aids in Walking	Involvement Demonstrated by X-Rays
1. B. B.	F	58	8	2 canes	Marked
2. M. H.	F	71	7	Crutches	Moderately severe
3. E. L.	F	60	10	0	Moderate
4. E. S.	F	26	3	0	Moderate
5. E. B.	F	58	4	0	Moderate
6. J. W.	F	65	15	Cane	Marked
7. G. L.	M	47	½	0	Moderate
8. G. H.	F	78	3	0	Moderate

Hinged knee braces were prescribed for the knees, and Hubbard tank therapy was given daily for nine days. Cortisone acetate was given by injection for 10 days in the doses described previously in Case 1. Side effects again were absent, and the sedimentation rate fell to 9 mm. in one hour during this period. However, there was no subjective or objective evidence of improvement in the hips. Pain and spasm persisted, and the range of motion was not appreciably altered.

Fig. 2.—X-ray showing degenerative changes, narrowing of the joints, and bone sclerosis.

CASE 4.—E. S. was a 26-yr.-old woman who had coxa plana since childhood. Degenerative changes in the hips ensued gradually and became symptomatic during the past three years. Walking was so painful that she was unable to do the shopping or much of the routine housework. It was the opinion of the orthopedic surgeons that hip arthroplasties were indicated, but they were willing to allow a trial on cortisone first.

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Cortisone by mouth was started on an outpatient basis in the usual dosage. After seven days, there was evidence of considerable subjective benefit but no objective change. By the second week the patient was able to do all of her housework and to go shopping as before. The subjective improvement was marked, and this woman was the only patient who became noticeably euphoric. There was also evidence of objective improvement in that the intermalleolar distance on forced abduction had increased from 41.5 to 47.5 cm. Placebo tablets were substituted for one week, and the patient experienced a moderate subjective relapse. The patient resumed treatment with cortisone and was still deriving considerable benefit after seven weeks.

CASE 8.—G. H. was a 78-yr.-old woman who had suffered from unilateral hip disease for three years. Although she had pain and limped when walking, she did not require a cane or crutches.

The blood count and sedimentation rate revealed no abnormality. X-rays disclosed a normal left hip but a moderately narrowed and sclerotic right hip joint. Cortisone was administered orally in an initial daily dose of 150 mg. for two days, then 100 mg. daily for 15 days. This treatment was also carried out on an outpatient basis.

After 10 days, the patient stated that she had considerably less pain, although she maintained a limping gait. Improvement was more marked, however, in the objective appraisal. The intermalleolar distance had increased from 23 in. (58.4 cm.) to 29 in. (73.6 cm.); flexion had increased by 30% and extension by 20%. There was no change in the degree of abduction or rotation. There was no doubt that this patient was improved during the trial on cortisone, so the treatment was continued. Throughout the next seven weeks there seemed to occur a slow relapse, even though the dose of cortisone was maintained at 75-100 mg. daily. The patient still continued on cortisone at the time of this writing, but was becoming increasingly discouraged, feeling that she was only a little better than before taking the drug. The increased abduction noted on cortisone trial has also decreased to almost pretreatment amount.

The results in all cases are summarized in Table 2.

In only two of the eight cases was there evidence of any degree of improvement as judged by the patients' subjective evaluation and by objective measurement of hip motion. Only in Case 4 did euphoria occur. Indeed, several patients requested that the treatment be discontinued. In only two instances, Cases 4 and 8, was it mutually desirable to continue with cortisone therapy.

COMMENT

Although degenerative joint disease is sometimes regarded as a natural, aging process which is comparatively benign, a study of patients with malum coxae senilis reveals the marked incapacitation that may result. The pain it produces accompanies every move and may be only less intense at rest. Treatment of this condition has been aided by such means as braces, crutches, intra-articular injections, neurectomies and arthroplasties. Until the etiology is better understood, little more than palliation can be offered.

It seemed, therefore, that a trial of cortisone might be indicated in osteoarthritis of the hip even without a specific rationale, for the mode of action of cortisone in arthritis is still undetermined. Physiologically, there was little reason to believe that this hormone would be of value in degeneratjve joint disease. We had noted its ineffectiveness in several cases in which there was degenerative joint disease which was superimposed on a "burned out" rheumatoid process. Despite this, we were prompted to give cortisone a trial because of several observations. It has been shown that there is probably a decreased synovial blood flow in degenerative disease as determined by intra-articular temperature cooling curves.[5] It has also been shown that cortisone will increase the peripheral blood flow.[6] Therefore, if some of the pain and muscle spasm in this disease is caused by synovial ischemia, it is conceivable that cortisone could be of benefit by improving synovial circulation.

Although cortisone had no appreciable beneficial effect in the dosage used on either the degree of pain or the range of motion in six of the eight patients, it is barely possible that larger doses of the drug over a more extended period might have effected improvement in the refractory cases. Whereas a trial with corticotrophin might also have succeeded where cortisone had failed, in one additional case of unilateral osteoarthritis of the hip, not included in the above series, a two-week-trial with corticotrophin had produced apparent subjective, but no objective, benefit. Salicylates and amphetamine sulfate were later administered, beginning six weeks after administration of corticotrophin had been discontinued, and it was found that the subjective benefit from this was greater than it had been while the patient was on corticotrophin. This finding emphasizes the fact that further study is required, in which controls are used.

TABLE 2.—*Results of Cortisone Treatment in Eight Cases*

	Involvement	Days	Total Dose, Gm.	Results	
				Subjective	Objective
1. B. B.	Bilateral	15	1.5	0	0
2. M. H.	Bilateral	10	1.3	0	0
3. E. L.	Bilateral	7	1.0	0	0
4. E. S.	Bilateral	14*	1.7	Improved	Improved
5. E. B.	Unilateral	18	2.0	0	0
6. J. W.	Bilateral	15	2.0	Discouraged	0
7. G. L.	Bilateral	12	1.5	0	0
8. G. H.	Unilateral	15*	1.6	Improved	Improved

* Treatment continued.

SUMMARY

Eight patients with osteoarthritis of the hips (malum coxae senilis), who were treated with cortisone acetate are discussed. There was no evidence of subjective or objective benefit that could be attributed to cortisone in six of the cases. The improvement noted in two cases was sufficiently marked to justify continuation of the treatment. It is difficult to justify the use of cortisone in the treatment of osteoarthritis with the known limitations and dangers of such treatment in this older age group on the basis of our results.

3400 Spruce St. (Dr. Hollander).

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An Old Complaint.—In 1500 B. C., the citizens of Thebes were complaining that there were no longer any . . . family physicians. Everyone was a specialist. Herodotus, the Greek historian, wrote, "The practice of medicine is so divided among them that each physician is a healer of one disease and no more. All the country is full of physicians, some of the eye, some of the teeth, some of what pertains to the belly."—*Illinois Health Messenger*, July 15, 1951.

PROLAPSE OF THE GASTRIC MUCOSA INTO THE DUODENUM

I. W. Kaplan, M.D., New Orleans
and
R. M. Shepard, M.D., Tulsa, Okla.

Prolapse of the gastric mucosa into the duodenum, as the name implies, is the protrusion of the redundant gastric mucosa through the pylorus into the duodenum. It is not rare in occurrence, and it may be responsible for a number of undiagnosed gastrointestinal symptoms.

Since the first reported case of prolapse of the gastric mucosa was surgically proved by Schmieden,[1] in 1911, over 100 cases have been reported as observed on x-ray but not confirmed by surgery.

Feldman [2] indicates that redundant gastric mucosa occurs in approximately 1% of all patients with gastrointestinal disease. Scott,[3] reviewing 1,346 cases of upper gastrointestinal tract disease, found 14, or 1.04%. Rees [4] found 4 cases of the condition in 3,000 patients who had upper gastrointestinal x-ray studies. Cove and Curphey [5] reviewed 650 cases and found that prolapse had occurred in 22, or 3.38%. It was their impression that the incidence is greater than is usually suspected. Eliason, Pendergass, and Wright [6] were the first to describe the roentgenographic signs produced by prolapse of gastric mucosa, in 1926. Melamed [7] collected 25 diagnosed cases in which the patients were relieved of symptoms after medical or surgical care. Ferguson,[8] in a review of 297 examinations of the upper part of the gastrointestinal tract made at Grady and Emory University hospital, found 23 cases, an incidence of 7.7%. He reports summaries of six cases, only one of which was proved by surgery. DiLeo, Kuker, and Shepard,[9] in 1949, summarized the literature of 33 cases proved by surgery and added one of their own.

The purpose of this report is to review briefly the literature on this condition, to emphasize its clinical aspects, and to report four cases that came to our attention in the past two years on the surgical services at Charity hospital and Touro infirmary in New Orleans.

An analysis of the literature discloses that a total of 41 cases of prolapsed gastric mucosa were proved at operation.[10] We have added four more cases, one of which has been previously reported. This brings the total to 44 (table 1). Over 100 cases were reported on x-ray, and the number may be even greater by this time. However, they were not confirmed by surgery, and therefore, are not included in this report.

From the Department of Surgery, Louisiana State University, Charity Hospital and Touro Infirmary.

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ETIOLOGY

The etiology of this condition and the mechanism of its occurrence are not definitely known. Several theories have been advanced. Eliason, Pendergass, and Wright [6] feel that a low-grade inflammation of the antral mucosa causes a hypertrophy of the mucosa and that the added effect of hyperperistalsis pushes the gastric mucosa through the pylorus. Rees [4] suggested that a degeneration of the pyloric muscle occurred and that if hyperperistalsis developed this caused the antral mucosa to become loosened and forced through the pyloris. Bralow and Melamed [11] theorized that a hypertrophic gastritis developed secondarily to a benign peptic ulcer, on either the gastric or the duodenal side, and in a small number of cases would eventually cause a prolapse of the mucosa through the pylorus. Scott's [3] observations led him to believe that a preexisting disease process of the gastric mucosa is not necessary for the production of a prolapse. He believes that the development of a prolapsed mucosa is inherent in the walls of the normal stomach and that any condition that may produce hyperperistalsis, whether neurogenic, such as fear, anxiety, or anger, or chemical, caused by stimulants such as coffee, tobacco, alcohol, or condiments, may play a part in the production of this condition. Cove and Curphey [5] offer no new theory but conclude that the lesion is a mechanical one based on a hypermotility of the gastric mucosa. This hypermotility may be congenital or caused by conditions that produce abnormal gastric motility which, over a period of time, loosens the mucosa from the submucosa to such an extent that a prolapse could occur. From observation of four patients in the ward and at operation, we are inclined to agree with the conclusions of Cove and Curphey.[5]

PATHOLOGY

On operation [11] the prolapsed portion of the gastric mucosa appears like a loose collar of redundant hypertrophied mucosa. The prolapsed fold may have the appearance of normal mucosa, soft, pliable, and not fixed, or it may be thickened, as in chronic gastritis. Studies of the normal gastric antrum reveal that the mucosa and the muscularis are connected by soft, yielding submucosa composed of loose, areolar tissue containing blood vessels, lymphatics, and nerves. Scott,[3] in studying over 100 autopsy specimens, demonstrated that the mucosa is movable over a distance of 1 to 1½ in. (2.5 to 3.8 cm.). However, this amount of mobility was not enough to permit a prolapse. Melamed [7] demonstrated that the movement of the gastric mucosa on the submucosa varied in individuals, and in some the gastric mucosa could be

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pulled through the pyloric ring. Studies of associated disturbed physiology of the stomach, as determined by gastric acidity, failed to show any correlation. Gastric acidity from zero degrees free and 13 degrees total to 75 degrees free and 90 degrees total was reported. Gastric motility, as demonstrated under fluoroscopy with a barium meal, also varied with the degree of pyloric obstruction present.

INCIDENCE

Prolapse of the pastric mucosa is found more commonly in the older age group, the majority of cases occurring in the fourth and fifth decades. There is a predilection for the male sex. There were 28 males and 16 females in the collected series, a ratio of approximately 1.8 to 1. The incidence does not vary according to race.

SYMPTOMS

The clinical picture of prolapsed gastric mucosa is so variable that a definite diagnosis cannot be made from symptoms alone. The history of symptoms ranges from several weeks to 10 or more years and from mild to severe (table 3). The more frequent complaints are those of epigastric distress, nausea, and vomiting aggravated by the taking of solid food. This was present in two of our cases. In cases of severe prolapses nausea and vomiting probably indicate a more complete pyloric obstruction. In the collected series of cases more commonly noted were epigastric pain of varying intensity (61.5%); digestive symptoms, such as indigestion, nausea, and loss of appetite (36.4%); vomiting (15.9%); epigastric fulness (13.6%); gastrointestinal bleeding as revealed by hematemesis and melena, or persistent occult blood in the stool (40.9%) (table 4). We believe the latter finding to be significant and feel that every case of unexplained gastrointestinal bleeding should be investigated from the standpoint of a possible prolapse. The symptoms are not specific and may be imitated by a variety of upper abdominal diseases. They are produced by a partial block of the pylorus by the redundant prolapsed mucosa that is intermittently pushed through the pyloric ring. Trauma to the mucosa can cause superficial erosions which might cause bleeding.

PHYSICAL FINDINGS

The physical findings in most cases are entirely noncontributory. Cove and Curphey [5] were able to feel a soft, doughy mass in the epigastrium in two of their five cases. We were unable to feel a mass in any of our four cases, though the patients were examined by a number of physicians at various times. Localized tenderness was found in some of the other cases of the collected series, and some showed evidence of weight loss or anemia.

LABORATORY DATA

The laboratory findings sometimes demonstrated a mild or moderately severe anemia. The gastric analysis usually shows a normal acidity. Scott [3] reported that in two-thirds of the cases the values were within normal limits or below and in one-third there was hyperacidity. Persistent occult blood in the stool is found in approximately 40.9%.

X-RAY DATA

X-ray is the most valuable aid in establishing a correct diagnosis. A central filling defect near the base of the bulb, giving a mushroomlike appearance, is the characteristic picture. Often the gastric rugae can be traced into the defect (Apr. 10, 1914) (figs. 1, 3, and 4). The prolapse has been more readily demonstrated in the prone than in the erect position. Retention is not necessary for the roentgenological diagnosis, and hyperperistalsis is not a constant finding. Teitelbaum [12] cites a case which he saw on fluoroscopy and reduced the prolapsed mucosa back through the pyloric ring. The prolapse, however, is not always seen on fluoroscopy, and films should always be made. Since the mucosal prolapse is often intermittent, it may be necessary to take repeated x-rays before a definite diagnosis can be made. In a case reported by Moon and Speed [10r] the first two gastrointestinal series disclosed normal conditions but the third examination revealed a prolapsed gastric mucosa. Cove and Curphey [5] had a similar experience in one of their cases. In three of our four cases a diagnosis was made by x-ray. In reviewing the x-rays made on the fourth case, the roentgenologist found them suggestive and felt that if he had kept this condition in mind he probably would have made the correct diagnosis. In this case the filling defect was interpreted as a probable carcinoma of the stomach. In the collected cases a pattern characteristic of a mucosal prolapse was observed on x-ray in 28 cases.

The condition must be differentiated from pyloric ulcer, hypertrophic gastritis, prolapsing gastric polyps, duodenal polyps, and carcinoma of the stomach. A definite diagnosis can be made only by exploratory laparotomy and gastrotomy.

TREATMENT

All the patients with a prolapsed gastric mucosa should have a trial of medical management which should include a bland, soft diet and antispasmodic drugs. If they fail to respond to treatment in a month, an exploratory laparotomy is indicated. Several types of operations have been suggested and performed. These include excision of the redundant mucosa and pyloroplasty, gastric resection, gastroenterostomy, simple excision of redundant mucosa, excision of the mucosa and gastroenterostomy, pyloroplasty, and closure of the pylorus and gastroenterostomy. Of our four patients, one had a Heineke-Mikulicz pyloroplasty with a good result. Two had an excision of redundant mucosa and a Heineke-Mikulicz pyloroplasty. One had an excellent result, and the other, age 81, died of other causes seven days after the operation. The fourth

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TABLE 1.—*Analysis of 44 Cases*

Author	Year	Age	Sex	Symptoms	Duration
Schmieden [1]	1911	27	F	Vomiting; epigastric pain	7 mo.
Eliason and Wright [10b]	1925	56	M	Not stated	Not stated
Eliason, Pendergass, and Wright [6]	1926	61	M	Epigastric cramps	5 mo.
Eliason, Pendergass, and Wright [6]	1926	29	M	Indigestion	Not stated
Meyer and Singer [10d]	1931	42	M	Indigestion; vomiting	2 mo.
Pendergass and Andrews [10e]	1935	70	M	Indigestion	15 yr.
Pendergass and Andrews [10e]	1935	37	F	Indigestion	1 yr.
Pendergass and Andrews [10e]	1937	46	M	Indigestion	5 yr.
Rees [4]	1937	53	F	R. U. Q. pain; fulness	5 yr.
Rees [4]	1937	43	F	R. U. Q. pain; fulness	Years
Rees [4]	1937	33	M	Vomiting	3 mo.
Bober and Copleman [10g]	1937	57	M	Pain; vomiting; hematemesis	20 yr.
Archer and Cooper [10h]	1939	29	F	Indigestion; epigastric distress	11 yr.
Archer and Cooper [10h]	1939	27	M	Epigastric pain; vomiting	Not stated
Archer and Cooper [10h]	1939	51	M	Tarry stools; weakness; anemia	2 yr.
Archer and Cooper [10h]	1939	58	M	Indigestion; hemorrhages	3 yr.
Melamed and Hiller [7]	1943	39	F	Fainting; weakness	3 mo.
Norgore and Shuler [10i]	1945	61	F	Epigastric pain	1 yr.
Norgore and Shuler [10i]	1945	42	M	Epigastric pain	2 yr.
Scott [3]	1946	25	M	Indigestion; epigastric pain	19 mo.
Scott [3]	1946	41	M	Epigastric pain	2 yr.
Scott [3]	1946	34	M	Indigestion; epigastric pain	2 yr.
Scott [3]	1946	31	M	Epigastric pain	5 mo.
Mackenzie, MacLeod, Bouchard [10j]	1946	29	M	Fulness; indigestion	20 mo.
Mackenzie, MacLeod, Bouchard [10j]	1946	48	M	Epigastric pain; ulcer healed	Not stated
Appleby [10m]	1947	64	F	Weight loss; indigestion	10 yr.
Appleby [10m]	1947	52	M	Weight loss; indigestion	7 yr.
Appleby [10m]	1947	44	F	Epigastric pain; vomiting; weight loss	Years
Appleby [10m]	1947	57	F	Cramping pain; fulness; weight loss	8 yr.
Appleby [10m]	1947	65	F	Fulness; pain; weight loss; indigestion	3 yr.
Appleby [10m]	1947	43	M	Fulness; weight loss; epigastric distress	Years
Judd and Moe [10n]	1947	53	M	Fulness; indigestion	12 mo.
Nygaard and Lewitan [10o]	1948	45	M	Indigestion	13 yr.
DiLeo, Kuker, and Shepard [9]	1948	65	F	Epigastric pain; indigestion	2 yr.
Ferguson [8]	1948	35	M	Epigastric pain; hematemesis; melena	Several yr.
Moon and Speed [10r]	1949	55	F	Epigastric pain; melena; weakness	2 yr.
Cove and Curphey [5]	1949	45	M	Pain in upper abdomen	Several yr.
Cove and Curphey [5]	1949	35	F	Weight loss; pain in upper abdomen; nausea	4-5 yr.
Cove and Curphey [5]	1949	32	M	Pain in epigastrium; vomiting	4 yr.
Cove and Curphey [5]	1949	61	M	Hematemesis 6 times in 5 yr.	5 yr.
Cove and Curphey [5]	1949	54	F	Pain in epigastrium aggravated by food	4-5 yr.
Kaplan and Shepard	1950	55	M	Periumbilical pain aggravated by food	Several yr.
Kaplan and Shepard	1950	42	M	Weakness; epigastric discomfort; anorexia	Several mo.
Kaplan and Shepard	1950	81	F	Vomiting aggravated by food	3 mo.

* R. U. Q. indicates right upper abdominal quadrant.

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Hemorrhage	X-Ray	Acidity	Operation	Pathology	Result
None	Irregularity of pylorus	Normal	Excision of mucosa	Fold of mucosa inflamed	"Cure"
None	Prolapsed mucosa	Not stated	Gastrostomy	Prolapsed mucosa	Not stated
None	Constant defect of duodenum	Not stated	Gastroenterostomy; excision of prolapsed mucosa	Prolapsed mucosa	No follow-up
None	Constant defect of duodenum	Not stated	Gastroenterostomy; excision of prolapsed mucosa	Prolapsed mucosa	"Healed"
None	Irregularity of pyloric area	0 free	Resection of mucosa	Chronic gastritis	Well 3 mo. later
None	Prolapsed mucosa	Normal	Excision of mucosa; gastroenterostomy	Redundant mucosa, ulcer post. wall	Improved; no follow-up
None	Prolapsed mucosa	30 free 86 total	Excision of mucosa	Prolapsed mucosa	Well 4 yr. later
Two bouts hematemesis	Filling defect of pylorus	45 free 60 total	Pyloroplasty	Redundant mucosa	Recurrence of symptoms 2 yr. later
None	Mucosal pouching; 6 hr. residue	Not reported	Closure of pylorus; gastroenterostomy	Prolapsed mucosa	Unimproved
None	Prolapse; no retention	Not stated	Section of pylorus; excision of mucosa	Prolapsed mucosa	Well; follow-up not stated
None	Prolapsed mucosa	Not stated	Excision of mucosa	Prolapsed mucosa	Well; follow-up not stated
Hematemesis, 15 yr.	Prolapse; no retention	Not stated	Excision of mucosa; Horsley pyloroplasty	Prolapsed mucosa	Died 4 mo. later; septicemia
Hematemesis; melena; anemia	Prolapsed mucosa	32 free 42 total	Pyloroplasty	Prolapse; tight pylorus	Relieved when discharged
None	Prolapsed mucosa	Not stated	Heineke-Mikulicz pyloroplasty	Prolapsed mucosa	Relieved when discharged
Melena	Normal	Not stated	Pyloroplasty	Prolapse; tight mucosa	Recurrence of hemorrhages
Hematemesis; melena	Prolapse; old gastroenterostomy	Not stated	Horsley pyloroplasty	Healed ulcer; prolapse	Small hemorrhage 6 mo. later
Melena	Filling defect in antrum	Not stated	Excision of mucosa	Hypertrophy; healed ulcers	Well 1 mo. later
None	Prolapsed mucosa	75 free 90 total	Gastric resection	Chr. gastritis; prolapse	Died 4 mo. later; stomach normal
None	Healed ulcer; prolapse	60 free 85 total	Gastric resection	Gastritis; prolapse with obstruction	Well at discharge
Occult blood	Deformed bulb	11 free 27 total	Resection of mucosa; Finney pyloroplasty	Normal mucosa	Well 1 yr. later
Occult blood	Prolapsed mucosa	0 free 13 total	Resection of mucosa; Heineke-Mikulicz pyloroplasty	Prolapsed mucosa	Well 1 yr. later
Occult blood	Protruding mucosa	Normal	Resection of mucosa; Heineke-Mikulicz pyloroplasty	Prolapsed mucosa	Well 1 yr. later
Hematemesis 500 cc.	Prolapsed mucosa	34 free	Resection of mucosa; Heineke-Mikulicz pyloroplasty	Prolapsed mucosa	Well 6 mo. later
None	Filling defect	Normal	Resection of mucosa; Heineke-Mikulicz pyloroplasty	Prolapsed mucosa	No follow-up
None	Narrowing of prepyloric region	0 free 30 total	Resection of mucosa; Heineke-Mikulicz pyloroplasty	Simple inflammation	No follow-up
Anemia; occult blood	Prolapse	0 free 56 total	Gastric resection	Gastritis; superficial ulcer	Well until dead 3 yr. later
None	Pyloric obst.; old gastroenterostomy	60 free 78 total	Gastric resection	Edema; prolapse	Well 13 yr.
None	Prolapsed mucosa	40 free 70 total	Gastric resection	Edema; prolapse	No follow-up
None	Prolapsed mucosa	2 free 33 total	Gastric resection	Gastritis; prolapse	Well 5 yr. later
None	Prolapse; retention	0 free 60 total	Gastric resection	Prolapse	Well 3 yr. later
None	Prolapse	14 free 65 total	Gastric resection	Prolapsed mucosa	Objectively normal 10 mo. later
None	Obstructing lesion	0 free 6 total	Gastric resection	Prolapse; gastritis	Well at discharge
Hematemesis	Prolapse	0 free 15 total	Gastric resection	Chr. gastritis; healed erosion; gastritis	Well 1 mo. later
Hematemesis; melena	Prolapse; duodenal diverticulum	Not stated	Excision of mucosa	Prolapse; chr. gastritis	Well 6 mo. later
Hematemesis; melena	Prolapsed gastric mucosa	Not stated	Resection of mucosa; Finney pyloroplasty	Normal mucosa	Asymptomatic
Melena	Prolapsed gastric mucosa	Not stated	Gastric resection; pyloroplasty	Redundant mucosa; petechial hemorrhage	Good 8 mo. after
None	Prolapsed gastric mucosa	Not stated	Resection of mucosa; Finney pyloroplasty	Not stated	Asymptomatic 1 yr. later
None	Prolapsed gastric mucosa	Not stated	Resection of redundant mucosa; Finney pyloroplasty	Not stated	Asymptomatic
None	Prolapsed gastric mucosa	Not stated	Resection of mucosa; pyloroplasty	Not stated	Asymptomatic 3 mo. later
Hematemesis	Prolapsed gastric mucosa	Not stated	Resection of redundant mucosa; Horsley pyloroplasty	Not stated	Asymptomatic 3 mo. later
None	Prolapsed gastric mucosa	Not stated	Resection of redundant mucosa; Heineke-Mikulicz pyloroplasty	Not stated	Asymptomatic
Hematemesis; melena	Prolapsed gastric mucosa	HCl free 57	Resection of gastric mucosa	Gastritis	Pyloric obstruction developed
None	Suggestive of gastric Ca.	Not stated	Heineke-Mikulicz pyloroplasty	Chronic gastritis	Asymptomatic
None	Prolapsed gastric mucosa	HCl free 41	Resection of redundant mucosa; Heineke-Mikulicz pyloroplasty	Chronic gastritis	Died

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had simple excision of the redundant mucosa. In this patient an obstruction developed at the pylorus, necessitating reoperation. We found a circular stricture at the pyloris. Because of very dense adhesions about the pylorus, a gastroenterostomy was performed. Four months later the patient was asymptomatic.

Fig. 1 (case 1).—Preoperative gastrointestinal series showing typical mushroomlike appearance characteristic of prolapse of gastric mucosa into duodenum.

Fig. 2 (case 2).—Preoperative gastrointestinal series showing central defect at base of duodenum.

OPERATIVE PROCEDURE

From our experience with four cases and an analysis of the collected series, we feel that the following procedure should be carried out. After the abdomen is opened, the upper cavity should be explored, with special attention to the stomach and duodenum. In our four cases external examination of the stomach and duodenum revealed no abnormality. If no lesion is found, the stomach should be opened very near the pylorus in its long axis. In one of our cases we made a high opening in the stomach and then extended it through the pylorus and then, after excising the redundant mucosa, closed the stomach and duodenum in a longitudinal manner without doing a pyloroplasty. This is the case in which a stricture at the pylorus resulted. With the stomach open the gastric rugae should be thoroughly examined. They should be placed on stretch in sections with a moistened sponge on a sponge holder. Small ulcerations or growths concealed in one of these folds can be easily overlooked. If no pathological conditions are found, attention should be directed toward the pylorus and duodenum. If a prolapsed mucosa is present, it can easily be demonstrated. It can be pulled back into the stomach as a circular fold with a pair of Allis forceps. This fold should also be examined for growths or ulcerations. Melamed [7] reports one case in which a large ulcer was found in the prolapsed mucosa. Rubin [13] reports a case in which a resected specimen revealed malignant change. The first portion of the duodenum should be thoroughly examined. This can be facilitated by cutting through the pyloric ring in the long axis of the stomach. The redundant fold is tented upward by grasping it at several places with Allis forceps. A cleavage plane is developed between the mucosa and the submucosa about 1 cm. proximal to the pyloric ring with a curved hemostat, and by blunt dissection it is separated transversely and circularly from the submucosa until the opposite cut edge is reached. The raised redundant fold is then cut away. The cut edges of the mucosa are then approximated and at the same time fixed to the submucosa with interrupted chromic 00 sutures. The opening in the stomach and duodenum is then closed by some form of pyloroplasty, such as the Heineke-Mikulicz, Finney, or Horsley type. If a growth or an ulcerated area is found, a gastric resection should be performed.

TABLE 2.—*Age Incidence*

Decade	Number of Cases
20-30	6
31-40	8
41-50	11
51-60	11
61-70	7
71-80	0
81-90	1

Average age is 45.5 yr.

TABLE 3.—*Duration of Symptoms*

	No. of Cases
Less than 1 yr	8
Over 1 yr	32
Not stated	4

Average duration 46.5 mo.

REPORT OF CASES

CASE 1.—A 55 year old Negro man complained of a pulling periumbilical pain of several years' duration, which was aggravated by the taking of food. He also gave a history of anal bleeding on two occasions, 18 and 12 mo. previously. Several weeks prior to admission he had a fainting spell following the passage of a large, liquid tarry stool. Otherwise the history was essen-

13. Rubin, J. S.: Prolapse of Polypoid Gastric Mucosa into the Duodenum with Malignant Change. Radiology 38: 362, 1942.

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tially noncontributory. The physical examination findings were also noncontributory except for a slight tenderness in the epigastrium on pressure and the presence of blood, both red and dark, on anal digital examination. Sigmoidoscopic examination revealed a small rectal polyp, which was not bleeding. Biopsy proved it benign, and it was felt at the time that it was not the cause of the patient's complaints. A gastrointestinal series revealed a central filling defect near the pylorus, giving a mushroomlike appearance, which was interpreted by the roentgenologist as a prolapsed gastric mucosa. Other laboratory procedures revealed a hemoglobin content of 8.9 gm. per 100 cc., 4,100,000 red blood cells, and 5,200 white cells, of which 69% were polymorphonuclear forms, 27% lymphocytes, 1% eosinophils, and 3% monocytes. The urine was normal. The blood urea nitrogen level was 44 mg. per 100 cc., serum protein level 6.51 gm., and chlorides 600 mEq. Gastric analysis after injection of histamine showed blood (4 +), 57 degrees of free hydrochloric acid and 97 degrees of total acid. The electrocardiogram was normal; x-ray studies after a barium enema showed no abnormalities, and chest x-ray (posteroanterior) was normal.

On Dec. 20 a right rectus-muscle-splitting incision was made. The upper abdominal cavity was explored and found normal. Transgastric exploration revealed a prolapsed mucosa through the pylorus. A 4 cm. fold of mucosa was excised. The stomach was closed in its long axis without pyloroplasty. For six days postoperatively the patient had persistent pyloric obstruction

TABLE 4.—*Symptoms Commonly Observed*

Symptoms	Cases	
	No.	Per Cent
Epigastric pain	27	61.5
Indigestion	16	36.4
Gastrointestinal bleeding	18	40.9
Weight loss	7	15.9
Epigastric fullness	6	13.6
Weakness	3	6.8
Vomiting	7	15.9

TABLE 5.—*Results of Gastric Analysis*

Acidity	No. of Cases
Normal	14
Hyperacidity	8
Hypoacidity	3
Not indicated	19

and distention. Thereafter the course was uncomplicated until discharge. Two weeks later the patient was readmitted to the hospital with persistent vomiting. Serial x-ray studies of the upper gastrointestinal tract revealed complete pyloric obstruction. On reoperation a dense mass of adhesions surrounding the pylorus was found, and exploration of this area was unsatisfactory. A gastroenterostomy was performed. The patient's convalescence from this operation was uneventful, and when seen four months later he was asymptomatic and gaining weight.

CASE 2.—T. B., a 42 year old white man, complained of a weight loss of about 1 lb. (0.5 kg.) a day for the last two months, weakness in the legs, anorexia, and epigastric discomfort. He gave no history of constipation, hematemesis, nausea or vomiting, or tarry stools. The history was otherwise noncontributory except for chronic alcoholism for many years but none for the past year. The physical examination findings were normal. Laboratory procedures revealed 3,790,000 red blood cells, a hemoglobin content of 14 gm. per 100 cc. (90%), and a color index of 1.2. The gastrointestinal series revealed a deformity at the pylorus that the roentgenologist interpreted as a possible early carcinoma of the stomach. With this diagnosis in mind, an exploratory laparotomy was performed. No lesion could be seen or palpated in the pyloric end of the stomach. The stomach was opened in its long axis near the pylorus. There was evidence of a chronic gastritis throughout, and there was a redundant mucosa, which herniated through the pyloric ring into the duodenum. A Heineke-Mikulicz pyloroplasty was performed.

After surgery the patient's symptoms disappeared, and two and one-half years later he is still asymptomatic.

CASE 3.—Mrs. P. E., an 81 year old white woman, was well until three months before admission, when she began vomiting after each meal. The vomiting increased in frequency and severity until she was unable to retain anything. She also complained of epigastric discomfort, and there was some loss of weight. She had a cholecystectomy many years previous to admission. The findings on physical examination were normal

Fig. 3 (case 3).—Preoperative gastrointestinal series showing central filling defect near base of bulb. The gastric rugae can be traced into the defect.

Fig. 4 (case 4).—Gastrointestinal series showing prolapsed mucosa into duodenum and large duodenal diverticulum at junction of second and third portion of duodenum.

except for senility, moderate dehydration, a small incisional hernia which contained no abdominal viscera, and severe generalized osteoarthrosis. Laboratory procedures revealed 4,800,000 red blood cells, a hemoglobin content of 14.5 gm. per 100 cc., 10,000 white cells, of which 80% were polymorphonuclear forms and 20% small lymphocytes. The hydrochloric acid level of the gastric contents was 41 units. The urine was

normal. The blood urea nitrogen level was 14 mg. per 100 cc., serum protein level 7.2 gm., and chlorides 600 mEq. Kahn and Kolmer reactions were negative. The electrocardiogram revealed definite evidence of myocardial disease; x-ray studies after a barium enema disclosed diverticulosis of the sigmoid, and the gastrointestinal series showed a prolapsed gastric mucosa. Because of the protracted vomiting, which did not respond to conservative therapy, an exploratory laparotomy was performed. Transgastric exploration revealed a prolapsed gastric mucosa. The redundant mucosa was excised, and a Heineke-Mikulicz pyloroplasty was performed. The ventral hernia was repaired in closing the abdominal wall. The patient did not do well after surgery. She became lethargic, and on the seventh postoperative day tachycardia, dyspnea, and many rales in both lungs developed. In spite of digitalis, supportive drugs, oxygen, and other measures she died. Complete autopsy revealed no anatomical cause of death.

CASE 4.[14]—M. R., a 65 year old Negro woman, was admitted to Charity hospital on Dec. 1, 1947, with the chief complaint of having vomited about 500 cc. of coffeegrounds material the day before admission and later of passing several tarry stools. Further questioning revealed that she had intermittent attacks of epigastric pain, indigestion, and occasional attacks of nausea and vomiting for the past two years. There had been a loss of weight of 40 lb. (18.1 kg.) due to a low caloric diet prescribed by her physician for hypertension. The following were the positive physical findings: The blood pressure was 160/80 mm. of mercury; the mucous membranes were pale, and an aortic systolic murmur was noted. Rectal examination revealed black stool on the examining finger, which on a benzidine test gave a 4 + reaction for blood. Laboratory studies revealed a hemoglobin content of 6.5 gm. per 100 cc., 2,500,000 red blood cells, 3,555 white cells, of which 60% were polymorphonuclear forms, 34% lymphocytes, and 6% monoctyes. The hematocrit reading was 19%. The urine was normal. Blood chemistry values were normal, and Kahn and Kolmer reactions were negative. The gastrointestinal series revealed no definite abnormalities demonstrated on fluoroscopy. The x-rays, however, showed prolapse of the gastric mucosa into the duodenum. A diverticulum was noted in the region of the junction of the second and third portions of the duodenum. There was no gastric retention. The patient was placed on a high caloric, high protein diet and given a total of 1,500 cc. of whole blood, raising the hematocrit reading to 38 mm. On Dec. 23, 1947, an exploratory procedure was performed through an upper right rectus-muscle-splitting incision. The upper part of the abdomen was normal. The stomach appeared and felt normal, except for a boggy mass in the pyloric region, extending into the first portion of the duodenum. Transgastric exploration revealed a prolapsed gastric mucosa. This was resected. The gastrotomy opening was closed by a Heineke-Mikulicz pyloroplasty. No attempt was made to remove the diverticulum. The pathologist's report stated the specimen indicated chronic gastritis. The postoperative course was uneventful. A gastrointestinal series done on Jan. 13, 1948, revealed no abnormality of the esophagus, stomach, or duodenum. The diverticulum was again observed. Six months postoperative the patient was asymptomatic and had gained 15 lb. (6.8 kg.).

SUMMARY

The literature of prolapse of the gastric mucosa into the duodenum is briefly reviewed. Forty-one cases proved by surgery have been collected, and we have added four cases, one of which was previously reported. The cause and the mechanism of the occurrence of prolapse of the gastric mucosa is not definitely known. The lesion is probably a mechanical one based on a hypermotility of the gastric mucosa, which may be congenital or caused by conditions that produce abnormal motility that, over a period of time, loosens the mucosa from the submucosa to such an extent that a prolapse could occur. Prolapse of the gastric mucosa is found more commonly in the older age group. The majority of cases occur in the fourth and fifth decades. The diagnosis cannot be made from the symptoms and physical findings. X-ray is the most valuable aid in establishing a correct diagnosis. A definite diagnosis can be made only by exploratory laparotomy and gastrotomy. All patients with a prolapsed gastric mucosa should have a trial of medical management, which should include a bland, soft diet and antispasmodic drugs. If they fail to respond to treatment in a month, an exploratory laparotomy is indicated. When surgery is indicated, excision of the redundant mucosa with pyloroplasty gives excellent results.

3439 Prytania St. (Dr. Kaplan).

14. This case has been reported previously.

TUBERCULOUS MENINGITIS CURED WITH STREPTOMYCIN

REPORT OF A CASE COMPLICATED BY RENAL AND URETERAL CALCULUS

Joseph T. Aquilina, M.D., Batavia, N. Y.

Until the advent of streptomycin, tuberculous meningitis was a uniformly hopeless and fatal disease. The first successful use of streptomycin in the treatment of tuberculous meningitis was reported in January, 1946, by Cooke and associates,[1] who treated a 1-yr.-old infant. In October of the same year Krafchik [2] reported apparent arrest of tuberculous meningitis in a 15-mo.-old infant. Hinshaw and his colleagues [3] reported on a series of 12 patients with generalized hematogenous tuberculosis, nine of whom had clinical evidence of tuberculous meningitis. Of the nine, only four survived, and of those surviving only one is normal and was still receiving treatment five months after admission.

Appelbaum and Halkin [4] report a case of tuberculous meningitis associated with miliary tuberculosis in a 9-yr.-old boy, with complete recovery. Mehas and Truax [5] report the case of a 31-yr.-old white woman in whom tuberculous meningitis was arrested after administration of 282 gm. of streptomycin over a period of 175 days; there was some residual neurological involvement, however.

Smith, Vollum, and Cairnes [6] reported 18 cases of tuberculous meningitis, of which 11 patients survived. In two cases, though the patients were treated as having tuberculous meningitis, the laboratory diagnosis of tuberculous meningitis could not be established. The

From the Veterans Administration Hospital.

Sponsored by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are a result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

1. Cooke, R. E.; Dunphy, D. L., and Blake, F. G.: Streptomycin in Tuberculous Meningitis: A Report of Its Use in a One-Year-Old Infant, Yale J. Biol. & Med. 18: 221 (Jan.) 1946.

authors treated their patients with streptomycin for periods varying from 68 to 255 days, using both intramuscular and intrathecal routes. The longest-treated patient received 510 gm. intramuscularly and 13.63 gm. intrathecally over a period of 255 days.

This paper reports a case of bacteriologically proved tuberculous meningitis in an Indian male who recovered after a long course of streptomycin therapy. By reporting this case, I hope to encourage the vigorous treatment of cases of tuberculous meningitis and to add mine to the number of other successfully treated cases.

REPORT OF CASE

History.—J. H. was a 24-yr.-old Indian male who was apparently in good health until January, 1947, when he began to complain of frontal headaches. He went to a private physician who treated him for sinusitis, but the headaches became more severe. He also had symptoms of an upper respiratory infection, such as running nose, watery eyes, and a general feeling of malaise.

On Feb. 14, 1947, the patient was admitted to a private hospital because of nausea, vomiting, and severe frontal headaches of four days' duration. On the day of admission his senses were clear and his temperature was 99 F. Later his temperature began spiking between 101 F. and 104 F., with a mean temperature by rectum of 102 F. After Feb. 18 the patient was delirious, disoriented, and restless, and did not respond to questioning. Reports from the private hospital indicated that he had paralysis of the external rectus muscles of both eyes. There was a slight facial weakness on the left side. The pupils reacted to light, and nystagmus was absent. Tendon reflexes in the left arm and left leg were absent. Babinski's sign could not be elicited. Spinal fluid examination revealed a pressure between 550 and 580 mm. of water. The fluid was clear, and early cultures yielded no growth. On Feb. 23 a repeat spinal fluid examination revealed pellicle formation in the fluid. There were 300 cells per cubic centimeter, with 100% lymphocytes. A neurosurgical consultant suggested a diagnosis of viral meningitis, and the patient was started on streptomycin. He was given 1 gm. per day in the hope that, if the meningitis were caused by an influenzal type of organism, there might be some improvement in his condition. The drug was discontinued after three days because there was no improvement.

The patient was then admitted to the Veterans Administration Hospital at Batavia, N. Y., on Feb. 24, 1947, in the same condition as was noted at the other hospital. He could be aroused by stimuli, but his answers were unreliable. Additional history obtained from the patient's brother revealed that the patient's mother had died 20 years previously of pulmonary tuberculosis.

Physical Examination.—The patient was a well-developed, well-nourished Indian male. His rectal temperature was 102 F.; blood pressure 110/70. He was lying in bed in a semicomatose state. The conjunctivas were clear. The pupils were widely dilated, round, regular, equal, and reacted sluggishly to light and accommodation. Bilateral abducens (sixth cranial nerve) paralysis was complete. Other extraocular muscles appeared to be undisturbed. Bilateral papilledema was observed. The tongue was dehydrated, coated, and protruded in the mid-line. There was no pharyngeal paralysis. The neck was rigid and painful when flexion was attempted. Examination of the lungs, heart, and abdomen revealed nothing abnormal. There were no petechiae. Lumbar puncture shortly after admission revealed an initial pressure of 380 mm. of water. The dynamics were normal and the fluid had a ground-glass appearance.

Laboratory Findings.—On the day of admission to the hospital, examination of the spinal fluid revealed 480 cells per cubic centimeter. It contained 89% lymphocytes; the colloidal gold curve was 0000000000; proteins were 110 mg. per 100 cc., spinal fluid sugar was 40 mg. per 100 cc., and blood sugar 80 mg. per 100 cc. Spinal fluid was negative on smear for bacteria, and the fluid was inoculated into a guinea pig and cultured. Urinalysis was noncontributory. Blood chlorides were 610.5 mg. per 100 cc.; the red blood count was 4,990,000 per cubic centimeter; the white blood count was 12,200 per cubic centimeter with differential consisting of 80% polymorphonuclear cells, 17% lymphocytes, 3% monocytes; the hemoglobin was 14 gm. per 100 cc.; the Wassermann reaction was negative.

Course in the Hospital.—Based on the clinical signs of meningitis and the initial spinal fluid findings, intensive antibiotic therapy was started. Initially, this consisted of penicillin, 40,000 units every three hours intramuscularly; on Feb. 26, 1947, streptomycin was started concurrently. At that time the exact dosage of streptomycin was just being formulated by various investigators, and the patient was started on what today are considered extremely large doses. He was given 4 gm. of streptomycin daily, in divided doses (500 mg. every three hours). X-rays of the chest on Feb. 25 revealed small calcific deposits in the right apex and small, ill-defined calcified deposits in the right upper lobe. However, this was not considered active pulmonary tuberculosis. X rays of the skull showed no abnormality. The patient remained drowsy. His temperature was 100.4 F. rectally, and he could not be aroused. Spinal tap on Feb. 26 revealed an initial pressure of 540 mm. of water; 35 cc. of "ground-glass" fluid was drawn, and final pressure was 350 mm. of water.

On March 1, 1947, sulfadiazine was started. The drug was given in this instance to cover the remote possibility that the condition was caused by a meningococcus infection, which occasionally has been known to escape bacteriological detection. On March 2 the patient improved slightly, and his temperature became normal for the first time. He began responding to questioning and was able to take nourishment by mouth; the next day, however, he became more lethargic. Nuchal rigidity was still present, and a bilateral positive Babinski sign could be elicited. Spinal fluid pressure was 550 mm. of water. The patient had to be catheterized. On March 6 the temperature became normal and the patient responded to questioning, although he still had hallucinations. He took fluids and solids well and began to regain bladder control. On March 7 sulfadiazine was discontinued because of nausea and emesis, although it was realized that the symptoms could well have been caused by increased intracranial pressure. On March 15 penicillin was discontinued. The spinal fluid pressure at that time was 200 mm. of water. Spinal fluid cell count was extremely high and consisted predominantly of lymphocytes. In spite of the decrease in spinal fluid pressure, the patient appeared lethargic and weak, and the prognosis was extremely poor. On March 20, upon the advice of the Streptomycin Committee of the Veterans Administration, who controlled the distribution and use of the drug in the Veterans Administration, the patient's streptomycin dosage was reduced to 225 mg. every four hours intramuscularly. On March 21 the spinal fluid pressure went up to 600 mm. of water.

On March 24, one month after the patient's admission, I was informed that the initial cultures of the spinal fluid on Feb. 19 and Feb. 20 were positive for tubercle bacilli; this was the first bacteriological proof that the case was one of tuberculous meningitis. At the same time, the inoculated guinea pigs were autopsied and found to have tuberculosis. On March 24 the spinal fluid pressure was 190 mm. of water and of ground-glass appearance; the cell count was approximately 400 cells per cubic centimeter, predominantly lymphocytes. On March 25 it was decided to start streptomycin, 100 mg. intrathecally daily. On April 24, approximately a month later, the patient was able to sit up for repeat X-rays of the chest, which revealed very small calcific deposits in the lung field, chiefly on the right. There had been no essential change from the admission X-rays of the chest. On April 25 the white blood cell count was 8,100 per cubic centimeter, with 20% eosinophils, 58% polymorphonuclear cells, and 22% lymphocytes. On May 6 the white blood cell count was 8,100 per cubic centimeter, with 26% eosinophils. Eyegrounds revealed bilateral optic atrophy, and the patient had shadow vision only. On May

2. Krafchik, L. L.: Tuberculous Meningitis Treated With Streptomycin, J. A. M. A. **132**: 375 (Oct. 19) 1946.
3. Hinshaw, H. C.; Feldman, W. H., and Pfeutze, K. H.: Treatment of Tuberculosis with Streptomycin; A Summary of Observations on 100 Cases, J. A. M. A. **132**: 778 (Nov. 30) 1946.
4. Appelbaum, E., and Halkin, C.: Tuberculous Meningitis and Miliary Tuberculosis Arrested With Streptomycin, J. A. M. A. **135**: 153 (Sept. 20) 1947.
5. Mehas, C. P., and Truax, W. E.: Streptomycin in Tuberculous Meningitis, J. A. M. A. **135**: 155 (Sept. 20) 1947.
6. Smith, H. V.; Vollum, D. L., and Cairnes, H.: Treatment of Tuberculous Meningitis With Streptomycin: A Report to the Medical Research Council, Lancet **1**: 627 (April 24) 1948.

10 the spinal fluid revealed 146 cells per cubic centimeter, mostly lymphocytes, with 240 mg. per 100 cc. of protein, and the spinal fluid sugar was 45 mg. per 100 cc. On May 13 intrathecal streptomycin was changed to 100 mg. every other day. The patient was incontinent of urine and feces at that time.

A week later, on May 20, on advice of the Veterans Administration Streptomycin Committee, the streptomycin was reduced to 50 mg. intrathecally every other day. On May 29 the patient was allowed to sit up in a chair. On June 16 intramuscular streptomycin was discontinued because I wanted to see what effect withdrawal of the drug would have on the patient's general course; however, intrathecal streptomycin was continued biweekly. On June 19 the patient was able to walk short distances with the aid of an attendant. At that time he had received a total of 245 gm. of streptomycin over a period of 111 days. The total number of rachicenteses was 73. He had received approximately 6 gm. of streptomycin intrathecally. His weight now was 102 lb., as compared with his average weight of 160 lb.

On June 28, 1947, when it was considered that the patient was having a recurrence of tuberculous meningitis, intramuscular streptomycin was resumed at a dosage of 225 mg. every three hours. The ophthalmologist reported that light perception was absent in the left eye, and that the optic disks were pale bilaterally, indicating optic atrophy. He thought that he could see a tubercle in the choroid of the left eye. On Aug. 16, 1947, the patient was using a walker. He still had visual difficulty, being blind in the left eye, but vision was improving in the right eye. He complained of severe weakness of the extremities.

All streptomycin therapy was discontinued on Aug. 23, the patient having received 350.8 gm. of streptomycin intramuscularly over a period of 168 days and 6.95 gm. of streptomycin intrathecally over a period of 85 days. The patient remained

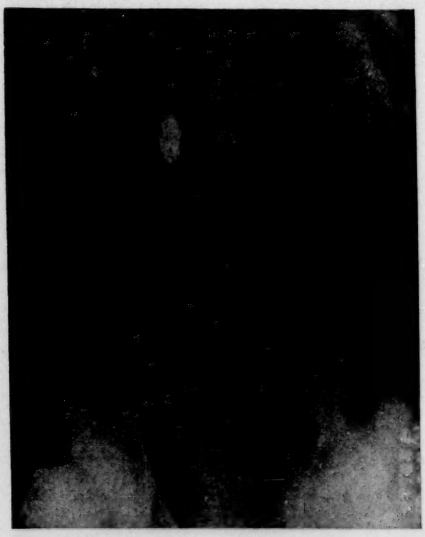

Fig. 1.—Intravenous pyelogram on Oct. 8, 1947, showing a calculus in right renal pelvis. Note the absence of dye in left kidney.

afebrile without streptomycin until Sept. 12, when his temperature and pulse rate became elevated, and he had frequent attacks of nausea, with emesis and abdominal pain. No new physical findings were elicited, except tenderness in the left upper quadrant. There was still weakness of the left side of the face and body, and a few days later urinalysis revealed 80 to 120 white blood cells per high-powered field. When it became apparent that he had a urinary infection, sulfadiazine was initiated on Sept. 16. Streptomycin was withheld, and a repeat rachicentesis revealed the pressure to be 120 mm. of water. The fluid was clear and colorless, containing 8 lymphocytes per cubic centimeter and 35 mg. per 100 cc. of protein. An intravenous pyelogram on Oct. 8 revealed a calculus in the right renal pelvis and lack of function of the left kidney (Fig. 1).

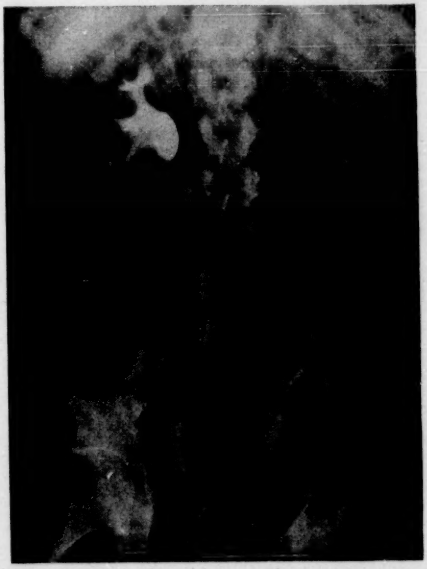

Fig. 2.—Retrograde pyelogram on Oct. 23, 1947. This demonstrates a large calculus in the right kidney, right hydronephrosis, and obstructing calculus in the left ureter.

On Oct. 23 cystoscopy and retrograde pyelogram revealed severe cystitis, ureteritis, right hydronephrosis with a stone in the pelvis of the right kidney, and an obstructing calculus in the left ureter (Fig. 2).

On Nov. 6 the left kidney was explored. A nodular mass in the left ureter was excised and a stone 1 mm. in diameter was removed. Nephrostomy was then performed to drain urine from the left kidney. On repeated attempts to catheterize the left ureter, the catheter met an obstruction. On Jan. 20, 1948, the Foley catheter in the left nephrostomy wound was accidentally cut by a ward attendant, and a new catheter could not be reinserted through the left nephrostomy wound into the left renal pelvis. The wound continued to drain a small amount of urine, but no urine drained into the left ureter.

Another intravenous pyelogram on Feb. 12, 1948, showed no excretion on the left side but good excretion on the right.

Cystoscopy was performed several times, but each time the left ureteral catheter met an obstruction. Cultures for acid-fast bacilli were negative.

The urologist consultant thought that the patient had tuberculosis of the right kidney and a functionless left kidney. The patient was sent to a convalescent center on June 24, 1948, for a period of three months. He returned Sept. 22, 1948, to the Veterans Administration Hospital in Batavia for further observation and convalescence. Physical examination at that time revealed a healthy-looking Indian male, well oriented, alert and walking with the aid of a cane. He weighed 150 lb. He could see well with his right eye, but vision with the left eye was still poor. The right pupil reacted to light and accommodation; the left pupil did not. His

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blood pressure was 130/100; the heart tones were good. The left nephrostomy wound had closed. The left leg showed slight decrease in diameter, and there was some slight weakness of the right leg. Positive bilateral Babinski signs could still be elicited. The ophthalmologist reported 20/30 vision of the right eye but no light perception of the left eye. There still was bilateral optic atrophy, more pronounced on the left. X-rays of the chest showed no change from the previous examination. An intravenous pyelogram revealed in the right upper quadrant dense, laminated, oval shadows that had the appearance of stones in the pelvis of the right kidney. Iodopyracet injection U. S. P. (diodrast*) was excreted promptly on the right. There was no excretion on the left. The right pelvis was still slightly dilated. The urinalysis was noncontributory. The blood proteins were 7.1 gm. per 100 cc. The specific gravity of the urine ranged between 1.001 and 1.010. The Wassermann test was negative. The blood urea was 14.9 mg. per 100 cc.; red blood cell count 4,670,000 per cubic centimeter; white blood cell count 6,750 per cubic centimeter, and hemoglobin 13.5 gm. per 100 cc. On culture and guinea pig inoculation the urine proved to be negative for tubercle bacilli.

The patient was discharged on Nov. 2, 1948. On Nov. 15 he was admitted to the Rehabilitation Center of the Veterans Administration Hospital, Bath, N. Y., where he underwent an intensive physical medicine rehabilitation. As part of this program intravenous and retrograde pyelograms were performed on Dec. 16, 1948. These revealed bilateral nephrolithiasis, a large laminated calculus in the right renal pelvis, and a left ureteral

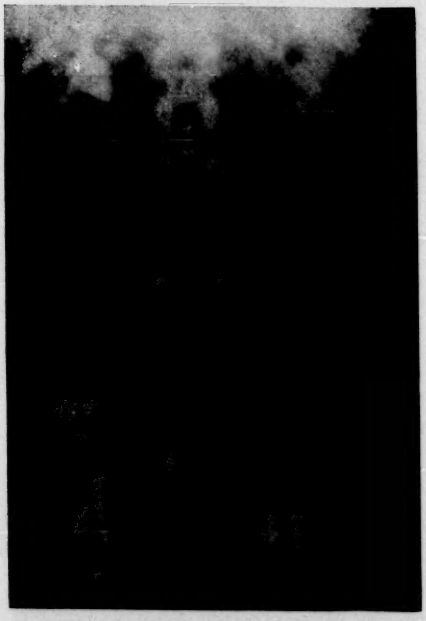

Fig. 3.—Intravenous pyelogram on Dec. 16, 1948, again showing the large calculus in the right kidney, and lack of function of the left kedney. Excretion of dye by the right kidney was prompt.

calculus (Figs. 3 and 4). Function of the right kidney was good; the left kidney showed no function. The patient was then transferred to the urologic service. It was thought best to remove the functionless left kidney. It was decided that the right kidney should be operated upon first, however, in order to prevent possible anuria from the large calculus, which might act as a ball valve and shut off the patient's only functioning kidney. A right pyelolithotomy and nephrostomy was then performed, and mush phosphatase calculus was extracted from the right part of the pelvis.

The postoperative course was stormy. The patient became uremic; the nonprotein nitrogen went up to 77 mg. and he had marked singultus. The blood chlorides were 385 mg. per 100 cc. His temperature was 100 F. On intravenous fluid and supportive

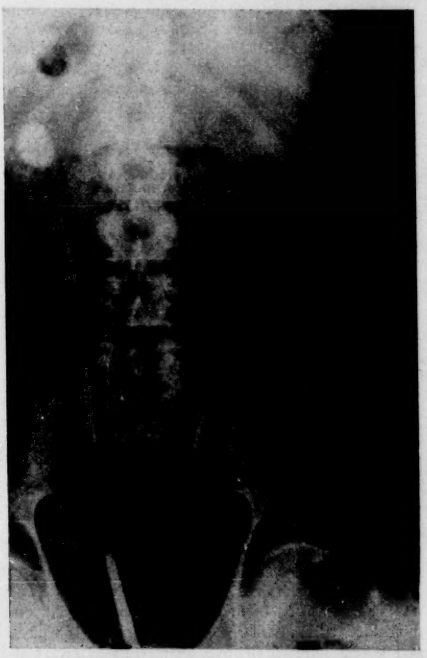

Fig. 4.—Retrograde pyelogram on Dec. 16, 1948. Note again the large laminated calculus, this time more clearly outlined. Also note the calculus in the left ureter.

therapy he improved considerably. On Jan. 6, 1949, the nephrostomy tube from the right kidney fell out and could not be reinserted. An intravenous pyelogram showed good function on the right. On Jan. 13 a left nephrectomy was performed. Pathologic examination of the left kidney revealed left pyelonephritis and chronic ureteritis. The stone proved to be triple phosphate. There was no gross or microscopic evidence of tuberculosis of the left kidney. On Jan. 25 an intravenous urogram revealed good kidney function on the right, and the patient was transferred back to the Rehabilitation Center, where he underwent a course of medical rehabilitation. During this period his intelligence quotient was 96. His only symptoms were slight weakness in the left leg and absence of vision in the left eye. He was discharged June 22, 1949.

The patient was readmitted to the Veterans Administration Hospital, Batavia, in December, 1949, for follow-up. He appeared well nourished, alert, and cooperative. The only positive findings on physical examination were absence of vision in the left eye and slight weakness of the left leg, which were noted at the time of his discharge from the Bath Rehabilitation Center in June, 1949. Spinal fluid examination and blood chemistry were normal. Urinalysis, however, revealed a low-grade urinary tract infection that completely cleared on penicillin therapy. Intelligence quotient was 101. After a short period of observation the patient was discharged to his home on an Indian reservation.

COMMENT

So far as I have been able to determine, this is the only case of recovery from tuberculous meningitis in an Indian male. With the exception of a few days, the patient was under vigorous and continued treatment from Feb. 26, 1947, through Aug. 23, 1947, and he received over a period of 168 days 350.8 gm. of streptomycin intramuscularly, and over a period of 85 days 6.9 gm. of streptomycin intrathecally. During this course of treatment the only sign of sensitivity to the drug was a marked eosinophilia for several days; this disappeared without cessation of drug therapy or reduction in dosage. This was also noted by Mehas and Traux in their case.[5]

The spinal fluid pressure and analysis returned to normal on Aug. 12, 1947, approximately six months after initial treatment. A complete spinal fluid examination elicited normal findings on Oct. 6, 1947, and Dec. 6, 1949.

The patient was cured of his tuberculous meningitis, and except for urinary complication he made a remarkable recovery, the only residuals being blindness in the left eye and slight weakness in the left leg.

As to the pathogenesis of the calculus formation in the urine, we can only speculate. I feel that this calculus formation, which resulted in the removal of the left kidney, was the result of demineralization of the bones, associated with a prolonged bedrest. Added to this may have been insufficient quantities of fluids and the large doses of streptomycin. The patient is alive and well and has been followed for three years since the onset of his illness.

SUMMARY

A case of tuberculous meningitis, treated by streptomycin, is presented. The diagnosis was established by culture and guinea pig inoculation. The patient was alive and well three years after the onset of his illness. The treatment consisted of 350.8 gm. of streptomycin administered intramuscularly over a period of 168 days, and 6.9 gm. intrathecally over a period of 85 days. Calculus formation was observed as a complication, and the only residuals of tuberculous meningitis were blindness in the left eye and slight weakness of the left leg.

Veterans Administration Hospital.

Drug Therapy of Hypertension.—The time is not yet ripe for a final assessment of the value of drug therapy in the management of hypertension. Current opinion may, however, be summarized as follows: brief reduction in pressure in emergency can be achieved with nitrites or T. E. A. B. (tetraethylammonium bromide); heavy sedation with barbiturates will result in some reduction in pressure in most cases for as long as the narcosis is maintained; the long-term reduction of pressure in at least a proportion of established cases of hypertension can be achieved by the ganglionic-blocking action of the methonium drugs, and their use constitutes probably the most encouraging forward step in the drug therapy of hypertension at the present time. Careful assessment of each individual case in respect of response, dosage and tolerance is required; there is no rule-of-thumb schedule of dose to be followed; occasional serious toxic effects occur; and complete failure to respond, especially with oral administration, is fairly common. Preparations of *Veratrum* and other vegetable derivatives are still under trial, and their general use in practice is far from practicable.—Ian G. W. Hill, M.B., The Drug Treatment of Hypertension, *The Practitioner*, June, 1951.

CLINICAL NOTES

BONE MARROW AND FAT EMBOLISM FOLLOWING MULTIPLE FRACTURES

S. W. Berkheiser, M.D.
and
Horace K. Giffen, M.D., Youngstown, Ohio

Fat embolism secondary to trauma of the skeletal system has long been recognized and frequently reported. Bone marrow embolism has also been observed, but seldom reported, and it has rarely received prominence in the literature.

Fig. 1.—A branch of pulmonary artery (1.0 mm.) almost completely filled by bone marrow embolus. Hematoxylin-eosin stain (× 35).

In 1943, Schenken and Coleman [1] reported a single case associated with a fracture of the left femur, and cited one case from the German literature.[2]

Survey of the literature up to 1948 reveals only three additional cases, which were reported by Lindsay and Moon.[3] Their first case was associated with multiple injuries and a fracture of the right femur. The remaining two cases were associated with multiple fractures of the skeletal system. Schenken and Coleman found bone marrow emboli in two (1-2 mm.) branches of the pul-

From the Laboratories of the Youngstown Hospital Association.

1. Schenken, J. R., and Coleman, F. C.: Bone Marrow and Fat Embolism Following Fracture of the Femur, Am. J. Surg. **61**: 126, 1943.

2. Henke, F., and Lubarsch, O.: Handbuch der speziellen pathologischen Anatomie und Histologie, Berlin, Springer-Verlag, 1931, vol. 3, pt. 3, pp. 104-107.

3. Lindsay, S., and Moon, H. D.: Bone-Marrow Embolism Following Fracture, J. Bone and Joint Surg. **28**: 377-380, 1946.

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monary artery. In each of Lindsay and Moon's cases, bone marrow emboli were found in a single branch of the pulmonary artery.

It is the purpose of this paper to report a case of widespread fat and multiple bone marrow embolism following fractures of the right radius, right temporal bone, and right supraorbital ridge. Bone marow emboli were found in four branches of the pulmonary arteries.

REPORT OF CASE

A white man, 82, was admitted to South Unit, Youngstown Hospital on March 18, 1950, because of pain in the right wrist after a fall at his home. Roentgenogram revealed a comminuted fracture of the distal portion of the right radius with slight posterior dislocation of the carpal bones of the hand. The fracture was reduced with the patient under general anesthesia (ether). There was some difficulty in attainment of adequate anesthesia; however, reduction of the fracture was performed smoothly. The patient appeared in good condition on return to the ward and conversed freely with fellow patients. Two hours after his return to the ward, he was found dead in bed, approximately six hours after admission.

Fig. 2.—Constituents of bone marrow embolus. Hematoxylin-eosin stain (× 600).

Autopsy revealed a poorly developed and poorly nourished elderly white man. The fracture of the right wrist was in good position. The significant gross findings were moderate generalized arteriosclerosis, moderate cardiac dilatation and hypertrophy (heart weight, 470 Gm.), pronounced pulmonary edema, and moderate arterial nephrosclerosis. Examination of the skull revealed an unsuspected fracture of the right supraorbital ridge and fracture of the right temporal bone. There was a small subdural hematoma underlying the fracture sites. Externally the brain showed slight diffuse cortical atrophy and congestion. The principal histologic findings were limited to the lungs. There was decided edema and early bronchopneumonia bilaterally. Dilatation and congestion of the pulmonary vessels and interalveolar capillaries were pronounced. One of the sections of the left lower lobe included a branch of the pulmonary artery, which measured 1.0 mm. in diameter. The lumen of this vessel was almost completely occluded by a large fragment of bone marrow (fig. 1). This fragment contained mature fat cells, immature and mature forms of the erythrocytic and myeloid series, together with several megakaryocytes (fig. 2). Two smaller and adjacent branches measuring 0.1 mm. in diameter, respectively, contained similar fragments within the lumens (fig. 3).

Fig. 3.—Small branch of pulmonary artery (0.1 mm.) from same lung as in figure 1. Hematoxylin-eosin stain (× 600).

Fig. 4.—Globules of fat in pulmonary artery. Sudan IV stain (× 130)

One of the sections of right lower lobe included another small branch of the pulmonary artery measuring 0.3 mm. in diameter, which also contained a fragment of bone marrow within the

lumen. The embolus within the larger vessel was traced by serial sections and was found within the lumen for a distance of approximately 150 μ. Multiple frozen sections of both lungs were made and stained with Sudan IV. Numerous globules of fat were found within the lumens of many of the pulmonary arteries, and smaller droplets of fat were present within the interalveolar capillaries (fig. 4). Similar frozen sections of heart, liver, and kidneys failed to reveal the presence of fat within the arteries and capillaries of these organs.

COMMENT

Since there were fractures of the right radius, right temporal bone, and right supraorbital ridge, one cannot with assurance determine the source of the bone marrow and fat embolism. The right radius seems the most probable source, even though the fracture involved the distal rather than the proximal portion. Since bone marrow emboli were demonstrated in three branches of the pulmonary artery of the left lung and within one branch of the right lung, the process was apparently diffuse and widespread. Moreover, massive fat embolism was demonstrated within many of the pulmonary arteries of both lungs. The unexpected death was presumably due to widespread fat and bone marrow embolism.

SUMMARY

A case of fat and multiple bone marrow embolism of the lungs is reported. The patient died unexpectedly after reduction of a fracture of the right radius. The cause of death is attributed to widespread fat and bone marrow embolism.

ADDENDUM

Since this paper was submitted 27 additional cases of pulmonary bone marrow embolism have been reported by Rappaport, Raum, and Horrell (Bone Marrow Embolism, *Am. J. Path.* 27:407, 1951).

The Youngstown Hospital Assn. (Dr. Berkheiser).

CHYLOTHORAX AND CHYLOPERITONEUM

REPORT OF A CASE OCCURRING AFTER EMBOLISM OF LEFT SUBCLAVIAN VEIN WITH THORACIC DUCT OBSTRUCTION

Morton Palken, M.D.
and
Russell W. Weller, M.D., Framingham, Mass.

Chylous fluid is rarely found within the serous cavities. This accumulation of fluid may be caused by obstruction or injury of any portion of the thoracic duct. Although the thoracic duct is usually a single structure that empties into the left subclavian vein, it is variable both in structure and venous termination. It may consist of multiple trunks in the thorax with cross communications; it may have multiple venous terminations in left or right subclavian, internal or external jugular, innominate, vertebral, or azygos veins. There may be communications with iliac or lumbar veins, vena cava inferior, or left renal vein.

From the Department of Pathology, Cushing Veterans Administration Hospital; Drs. Palken and Weller are Residents in Pathology.

Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are a result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

With complete obstruction of the thoracic duct, intraductal pressure increases and distal lymphatics dilate and rupture, producing chylous effusions if no collateral channels exist. If obstruction occurs slowly, collaterals may develop sufficiently to prevent chylous effusions.

Yater [1] studied 24 cases of thoracic duct obstruction from various causes; only three developed chylous effusions. Washburn,[2] in a study of 12 cases of thoracic duct obstruction, found only one with chylous effusion. Chylous ascites may occur with or without chylothorax and vice versa, despite high obstruction of the thoracic duct. In Yater's series, there is a case of extensive chylothorax and chylopericardium without chylous ascites, caused by obstruction of the veins and thoracic duct in the neck by metastatic carcinoma.

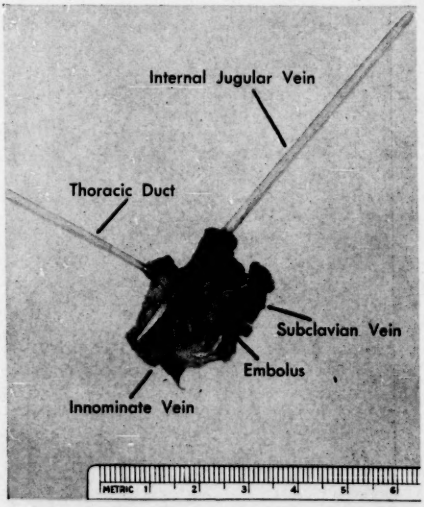

Fig. 1.—Photograph of fixed specimen showing thoracic duct, veins, and embolus.

The causes of chylous effusion in order of frequency are extrinsic compression or intrinsic occlusion by metastatic neoplasm, tuberculosis, thrombosis of the left subclavian or innominate veins, perforating lymphangitis, filariasis, and effusions secondary to thoracic duct trauma. The fluid varies considerably depending on the amount of protein, inflammatory or neoplastic exudate, and lipid content.

Few cases of chylous effusion secondary to thrombosis of neck veins are reported, whereas thrombosis of these veins without chylous effusion is relatively common.[3] Bauer [4] described the case of a woman aged 41 with pleural and ascitic chylous effusions resulting from thrombosis, of unknown etiology, of the left subclavian and innominate veins. In three months, 12,550 ml. of chylous fluid was removed from the pleural cavities and 30,050 ml. of similar fluid from the peritoneal cavity. The thoracic duct was dilated and had three openings into the left subclavian vein, all of which were

occluded by the thrombus. Little and others [5] described a case of thrombosis of the left internal jugular vein and probable thrombosis of the left subclavian vein, presumably traumatic in origin, with chylothorax and chyloperitoneum. Yater [1] mentioned briefly four somewhat similar cases.

REPORT OF A CASE

A man aged 58 was admitted to Cushing Veterans Administration Hospital for the fourth time on April 20, 1950, with a generalized skin rash of four years' duration. He was first admitted in October, 1946. Skin biopsy was performed at that time and again in January, 1950; both times the diagnosis was mycosis fungoides. In December, 1946, he received x-ray treatments to the extremities without demonstrable effect. He received a course of nitrogen mustard in 1949, resulting in slight temporary regression of skin lesions. At the time of his final admission to the hospital, he complained of nausea, vomiting, and abdominal cramps, in addition to the intense pruritus and weeping of the skin.

Physical examination revealed an emaciated man with generalized, severe exfoliative dermatitis. His pulse rate was 116, respiration 24, temperature 96 F., blood pressure 106/50. There was marked fissuring at the angles of the mouth and the tongue was smooth and red. Coarse rales were present in both lungs, with dulness over the right upper lobe posteriorly. Examination of the heart elicited negative findings. The liver edge was palpable 10 cm. below the right costal margin. The prostate was moderately enlarged. One-plus pitting edema of both legs was present. The inguinal and axillary lymph nodes were firm and up to 4 cm. in diameter.

Laboratory studies revealed a hemoglobin value of 12 gm. per 100 cc.; hematocrit 34%; leukocyte count 28,000, with 24% segmented neutrophils, 4% band neutrophils, 28% lymphocytes, and 44% eosinophils. Urine contained 1+ albumin, 4 to 5 erythrocytes and 2 to 3 leukocytes per high-power field. Sedimentation rate (Wintrobe, corrected) was 0 mm. per hour. Total serum protein was 4.4 gm. per 100 ml., formol-gel test negative, and cephalin flocculation test negative. The van den Bergh reaction was 0.2 mg. per 100 ml. direct and 0.7 mg. per 100 ml. indirect.

The patient's condition gradually became worse, although he took fluids including milk freely. On April 24, 1950, the patient received 1,000 ml. of 5% dextrose in isotonic saline solution and 1,000 ml. of 10% dextrose in water into a left antecubital vein. At 5 p. m. on April 25, 1950, nitrogen mustard (methyl bis [beta chlorethyl] amine hydrochloride), 0.2 mg. per kilogram of body weight, was injected into a left antecubital vein. At 2:15 a.m., April 26, 1950, the patient was found dead in bed.

Autopsy was performed at 9:30 a.m., April 26, 1950. The skin of the entire body was erythematous with extensive desquamation and fissuring. The abdomen was slightly distended. Firm, discrete lymph nodes up to 4.5 cm. in diameter were present in the axillary, inguinal, and femoral regions. There was 1+ pitting edema of the feet and ankles. Three hundred and twenty milliliters of milky fluid were present within the peritoneal cavity. The liver edge was 7 cm. below the right costal margin. Firm lymph nodes up to 2.6 cm. in diameter were present in the periaortic region retroperitoneally. There were fibrous adhesions at the apex and base of the right lung. There was no fluid in the left pleural cavity. The right pleural cavity contained 50 ml. of milky fluid. The hilar lymph nodes were firm and up to 3 cm. in diameter.

The lumbar lymphatic trunks were dilated to 0.2 cm., the cisterna chyli to 1 cm., and the entire thoracic duct from 0.5 cm. to 1 cm. in diameter. The thoracic duct opened by a single orifice into the left subclavian vein posteriorly near its junction with the internal jugular vein. Overlying this orifice and slightly adherent to the intimal surface of a valve in the subclavian vein was a smooth, reddish-gray thrombus 2 cm. long and 0.6 cm. in diameter. No other intrinsic or extrinsic thoracic duct obstruction could be found.

Both lungs were congested and edematous. The heart was of average size, and the coronary arteries were thickened and calcified but patent. In the posterior portion of the interventricular septum was a focus of fibrosis 2 cm. by 4 cm. by 3 cm. The aorta was arteriosclerotic, with ulcerations and adherent thrombi in the abdominal portion. The spleen, pancreas, and adrenals were not remarkable. The liver was large and weighed 3,000 gm. Cut section revealed a friable, pale-yellow parenchyma with prominent lobules. Kidneys, ureters, bladder, and testes were not remarkable. The prostate weighed 40 gm. and was moderately firm with nodular lateral lobes.

Examination of the chylous fluid revealed a specific gravity of 1.010, total protein 280 mg. per 100 ml., a few lymphocytes, and occasional neutrophils and fat globules staining orange with Sudan IV.

Microscopic examination of tissues revealed small focuses of fibrosis in the myocardium, occasionally infiltrated by eosinophils, lymphocytes, and brown pigment-laden phagocytes. The lungs were congested and edematous, with numerous neutrophils and eosinophils present in some bronchi, bronchioles, and surrounding lung alveoli. Numerous eosinophils were present in the red pulp of the spleen. There was a diffuse fatty infiltration of the liver, with alcoholic hyalin present in liver cells. Widened portal zones with proliferation of bile ducts and numerous lymphocytes and eosinophils were noted. There was

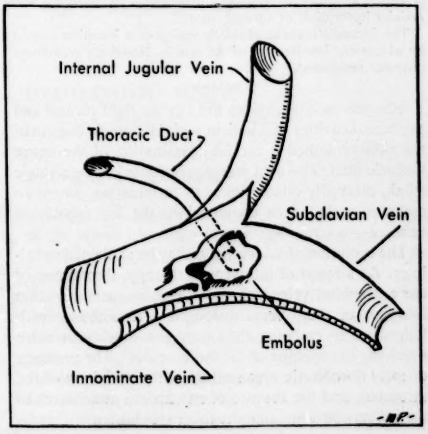

Fig. 2.—Schematic representation of Figure 1.

slight nodular hyperplasia of the adrenal cortices. Occasional small cortical scars in the kidneys with hyalin intimal thickening of the small arteries were observed. Nodular hyperplasia of the prostate gland was present. The basement membranes of the testicular tubules were thickened and spermatogenesis was decreased. Sections of skin revealed parakeratosis, acanthosis, and, in some sections, marked prolongation of rete pegs with thinning of intervening epidermis. There were large focal collections of eosinophils, lymphocytes, neutrophils, and large cells with

1. Yater, W. M.: Non-Traumatic Chylothorax and Chyloperitoneum: Review and Report of a Case Due to Carcinomatous Thrombo-Angiitis Obliterans of the Thoracic Duct and Upper Great Veins, Ann. Int. Med. **9**: 600, 1935.

2. Washburn, R. N.: Pathologic Considerations of the Thoracic Duct, Am. J. M. Sc. **196**: 572, 1938.

3. Sampson, J. J.: An Apparent Causal Mechanism of Primary Thrombosis of the Axillary and Subclavian Veins, Am. Heart J. **25**: 313, 1943. Veal, J. R.: Thrombosis of the Axillary and Subclavian Veins, with a Note on the Post-Thrombotic Syndrome, Am. J. M. Sc. **200**: 27, 1940. Sampson, J. J.: An Apparent Causal Mechanism of Primary Thrombosis of the Axillary and Subclavian Veins, in Medico-Surgical Tributes to Harold Brunn, Berkeley, University of California Press, 1942.

4. Bauer, J. T.: A Case of Chylothorax and Chylous Ascites with a Review of Lesions of the Thoracic Duct, Bull. Ayer Clin. Lab., Pennsylvania Hosp. **3**: 483, 1946.

5. Little, J. M.; Harrison, C., and Blalock, A.: Chylothorax and Chyloperitoneum: Effects of Reintroduction of Aspirated Chyle, Surgery **11**: 392, 1942.

basophilic cytoplasm and large multilobated nuclei in the superficial dermis. The bone marrow was hyperplastic and the eosinophilic series was predominant. The normal architecture of the abdominal lymph nodes was incompletely replaced by a granulomatous process with minimal fibrosis and numerous eosinophils, swollen reticulo-endothelial cells, and large cells with basophilic cytoplasm, multilobated nuclei, and prominent nucleoli. The thoracic duct was dilated but otherwise not abnormal. Sections through the junction of the thoracic duct and subclavian vein demonstrated a thrombus in the vein consisting of erythrocytes, fibrin, neutrophils, and islands of platelets. One side of the thrombus was undergoing early organization. On the surface of the thrombus adjacent to the thoracic duct opening were a few fibrin tabs.

On the basis of the findings at autopsy, the diagnosis was chylous ascites and right chylothorax; dilatation of thoracic duct; Hodgkin's disease of skin, granuloma type (mycosis fungoides), with metastases to abdominal lymph nodes; arteriosclerosis of coronary arteries and aorta; focal fibrosis of myocardium; bronchopneumonia; edema and congestion of lungs; fibrous pleuritis; eosinophilic hyperplasia of bone marrow; portal cirrhosis; arterionephrosclerosis; hyperplasia of prostate, and nodular hyperplasia of adrenal cortex.

The immediate cause of death was severe inanition caused by widespread involvement of the skin by Hodgkin's granuloma (mycosis fungoides).

COMMENT

The presence of chylous fluid in the right pleural and peritoneal cavities of a patient with Hodgkin's disease of the skin prompted a careful examination of the entire thoracic duct. The duct was demonstrated to be a single trunk, markedly dilated up to its termination, where an embolus occluded its opening into the left subclavian vein.

The evolution of this embolus may be explained as follows: As a result of intravenous therapy, thrombosis of the antecubital veins occurred. A subsequent injection into one of these veins dislodged a thrombus, which lodged as an embolus caught by the subclavian valve overlying the opening of the thoracic duct. The presence of early fibroblastic organization at the periphery of the thrombus, and the absence of any fibrous attachment to the subclavian vein, support this explanation.

SUMMARY

A report of a case of Hodgkin's disease of the skin, with the unusual finding of an embolus in the left subclavian vein obstructing the orifice of the thoracic duct and resulting in chylous ascites and chylothorax, is presented.

Veterans Administration Hospital, Framingham, Mass.

Medical Education.—The most important element in medical education is theory, not practice. All practice—even driving a nail—is based upon some sort of theory, however nebulous. Given good theory any reasonably adept person can be taught good practice, but without sound theory practice is misdirected and may become positively dangerous. That is not to deny that good theory can come from practice. The bedside is the clinician's laboratory and provides in addition the ultimate test for any medical theory. A tremendous amount of valuable observation has been gained from that source. But while it remains only observation it is still purely empirical. Before such facts can be woven into fruitful scientific theory they must be sorted in various combinations, checked experimentally against working hypotheses in the laboratory, and finally verified at the bedside once again under properly controlled conditions.—A. A. Abbie, M.D., The Academic Aspect of Medical Education, *Medical Journal of Australia*, June, 1951.

AIR EMBOLISM IN PNEUMOPERITONEUM

A. Gerson Hollander, M.D., Oakland, Calif.

Air embolism is a dramatic and often catastrophic complication of pneumoperitoneum. It follows the entrance of large quantities of air into the pulmonary venous system through a systemic vein. Fortunately, its incidence is rare, but it occurs more frequently than the occasional report in the literature would seem to indicate.[1] The growing popularity of pneumoperitoneum in the treatment of pulmonary tuberculosis and its ease of administration seem certain to increase the frequency with which an embolism is met by the general practitioner as well as the phthisiologist.

The purpose of this report is to add three more cases of air embolism to the literature and stress the clinical application of the observations of Durant [2] and his coworkers, who have provided a simple effective method for coping with this emergency.

REPORT OF CASES

CASE 1.—C. A. P., a white man aged 24, was discovered to have pulmonary tuberculosis in 1944. A right phreniclasia and pneumoperitoneum were induced in January, 1947, but, soon after, he left the hospital against advice and abandoned this procedure. He was readmitted to the hospital in September, 1947, and because of the presence of bilateral cavitary disease with positive sputum, it was decided to reinstitute his pneumoperitoneum. Under local anesthesia and using a closed technique with three-way stopcock and syringe, a 19-gauge blunt needle was easily inserted into the right upper quadrant of the abdomen. No blood was obtained on manipulation of the syringe and 300 cc. of air was given slowly and without incident, when suddenly the patient became very excited and tried to jump off the table. The needle was promptly withdrawn and the patient restrained. Acute cardiac collapse—marked pallor, tachycardia, tachypnea, and profuse perspiration—developed, and he kept screaming that he was dying. He was incontinent of urine and feces, and a left hemiplegia developed. He was given sedation and maintained in the head-down position, and he soon quieted down. Within four hours he had regained some use of his left arm and leg. The next morning, with the exception of inability to control fine movements of his fingers and some diminution in sensorium on the left, he had completely recovered. Within 48 hr. he was entirely normal. When examined recently (June, 1950), he had shown no sequelae. It might be noted that though his left pupil was dilated and fixed to light during the acute stage, his fundi were normal, and no air bubbles were seen in the retinal vessels.

CASE 2.—In T. L., a white man aged 56, pernicious anemia developed in 1929 and pulmonary tuberculosis in 1945. He was hospitalized for his tuberculosis in 1946, and pneumoperitoneum was instituted in March, 1947. He required 800 to 1,000 cc. of air at weekly intervals to maintain a pressure of + 7 to + 12 with adequate rise of the diaphragm. On Dec. 16, 1948, under local anesthesia and using a closed system with three-way stopcock and syringe, a 19-gauge needle was introduced into the peritoneal cavity. Drawing back on the syringe revealed a free air space,

From the Veterans Administration Hospital, Atlanta.

Dr. Hollander is now Chief, Tuberculosis Service, Veterans Administration Hospital, Oakland, Calif.

Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author do not necessarily reflect the opinion or policy of the Veterans Administration.

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and the manometer registered + 7. One thousand cubic centimeters (1,000 cc.) of air was given, a final reading of + 12 obtained, and the needle withdrawn. The patient got off the table, walked across the room and, as he started to put on his bathrobe, fell unconscious to the floor. In spite of the absence of pulse and respiration when examined by another physician in the room at the time, artificial respiration, oxygen, and cardiac stimulants were given, but the patient was dead. Autopsy revealed a small hemorrhage subperitoneally and in the abdominal musculature, with a large amount of air separating the layers of muscle tissue. This extended over an area 6 cm. in diameter surrounding a perforated vein. The right auricle and right ventricle contained a large amount of air and a small amount of blood. These were mixed and frothy in character. The pulmonary artery and its two branches contained air and frothy blood, as demonstrated by inserting a needle into these vessels and obtaining a sample of their contents before the heart or great vessels were opened.

CASE 3.—C. E. B., a white man aged 26, was first discovered to have pulmonary tuberculosis in 1945. A left pneumothorax was begun in November, 1946 and discontinued in August, 1947, because it was ineffective. Pneumoperitoneum was started on Dec. 8, 1947, and continued with 1,000 cc. of air being given at weekly intervals with the maintenance of a pressure of + 8 to + 10. He had a succession of irregular discharges and was admitted to this hospital for the third time on Aug. 13, 1948. He had not taken his treatment regularly while at home, and fluoroscopy revealed only a small pocket of air under the right diaphragm. On Aug. 24, 1948, pneumoperitoneum was done. Under procaine hydrochloride (novocaine®) anesthesia, and using a closed system, a 19-gauge needle was inserted into the right upper quadrant. Manipulation of the syringe revealed a free air pocket and a reading of + 2 to + 4 was obtained. One hundred cubic centimeters of air was given with little change in pressure reading. A second hundred was allowed to run in with a pressure of + 8. After the administration of 50 cc. more, the patient coughed and attempted to sit up. The needle was promptly withdrawn. Almost immediately he became apneic and intensely cyanotic and had incontinence of urine and generalized clonic contractures of all extremities. He was immediately placed in the left lateral position. His pulse became stronger, respirations returned, and cyanosis disappeared within five minutes. Oxygen was administered, but within 15 min. the patient had recovered sufficiently to be returned to his ward. Neurologically, he had weakness of the left arm and leg which cleared completely within eight hours. Recent examination (June, 1950) revealed no sequelae.

COMMENT

Air embolism as it is usually encountered in pneumoperitoneum occurs as a result of the entrance of massive quantities of air into a systemic vein, transported to the right heart where it produces an acute obstruction to the outflow tract of the right ventricle. Experimentally, Durant[2] and his co-workers have shown that this is a mechanical obstruction and can be relieved by placing the patient on his left side. In this position the outflow tract lies inferiorly to the body of the right ventricle and the air trap disappears. The air is churned into froth, mixed with the blood, and transported to the lungs, where excretion occurs. This procedure is frequently effective even when the patient appears moribund. It must be remembered that a large quantity of air is necessary to produce this condition, and it may take considerable time before all the air is excreted. The patient should be kept in the left lateral position until it has been determined that the obstruction is completely relieved. Occasionally this may take several hours, with recurrence of symptoms when the patient is returned to the decubitus position.[3] The use of oxygen and cardiac stimulants are of little value unless the mechanical block is relieved promptly.

It should be noted that it is standard practice in this hospital to use the head-down (modified Trendelenburg) position and a closed system in administering pneumoperitoneum as prophylactic measures to prevent this complication. Nevertheless, air embolism was encountered three times in the past three years during which approximately 3,000 treatments were given. Two of these were definitely venous while the third might have been arterial.

SUMMARY

Air embolism as a complication of pneumoperitoneum occurs more frequently than the literature would seem to indicate.

Three cases, one fatal, exhibiting this syndrome have been described.

The effectiveness of the left lateral position in the treatment of this condition is stressed.

Veterans Administration Hospital, Oakland, Calif.

3. Abbott, O. A.: Personal communication to the author.

UVEOPAROTID FEVER

William Saphir, M.D.
and
Irwin Dvore, M.D., Chicago

Uveoparotid fever is a chronic inflammatory disease of the uveal tract of the eye with enlargement of the parotid glands, often running a febrile course, and frequently complicated by paralysis of the facial nerve.[1] The condition was first described by Heerfordt in 1909.[2] An extensive review and an analysis of 47 cases was presented by Garland and Thompson in 1933.[3] These authors were so convinced of the tuberculous etiology of the disease that they proposed the name uveoparotid tuberculosis, particularly in view of the fact that only half their cases ran a febrile course. They based their assumption on a few recorded necropsies, on results of guinea pig inoculations, on a frequently found family history of tuberculosis, and on favorable results of tuberculin therapy.

In 1936, Bruins Slot[4] first suggested that, because of the similar pathological picture and occasional coexistence of Boeck's sarcoidosis and Heerfordt's syndrome, uveoparotid fever is merely another form of sarcoidosis. A number of cases of sarcoidosis with uveoparotid fever have since been reported, chiefly in the ophthalmological literature.[5]

An additional such case is here presented, not only because of the relative rarity of the disease, but also because of the importance of keeping sarcoidosis in mind if confronted with failing vision and uveitis.

From the Medical Department, Cook County Hospital.

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REPORT OF A CASE

Mrs. D. C., a 33-year-old Negro woman, was admitted to the medical department of the Cook County Hospital September 3, 1950. For the past six months she had noticed a gradual failing of her vision, so that reading or fine house work had become increasingly difficult. For the past four weeks symptoms of a "chest cold" were present with a tight feeling around the chest, an unproductive cough, and some shortness of breath, particularly on exertion. In addition, general weakness, anorexia, and increasing exhaustion with lassitude and lack of energy induced her to seek hospital admission. The past history revealed three attacks of pneumonia, the last one in 1945 requiring hospitalization. The family history disclosed close contact to tuberculosis, with the mother succumbing to this disease in 1938.

The physical examination revealed a poorly nourished Negro woman, apparently chronically ill and looking much older than the stated age. The blood pressure was 118 systolic and 72 diastolic, the pulse rate was 80, and the respiratory rate 18. Significant findings were a slight bilateral conjunctival and pharyngeal injection, and a generalized multiple moderate lymphadenopathy involving both the lateral and posterior cervical and axillary glands. The chest appeared normal to percussion and auscultation. The heart was not enlarged, the rhythm was regular, and the sounds were clear. The abdominal findings were not remarkable. On the extensor surfaces of both legs a reddish-purple maculopapular eruption was noted. The deep and superficial reflexes were present and there was no gross evidence of any neurological abnormality.

Laboratory findings disclosed a normal urine, a hemoglobin value of 73%, a blood cell count of 4,490,000 erythrocytes, 5,930 leucocytes, with a differential count of 58% neutrophils, 21% lyphocytes, 13% monocytes and 4% eosinophils. The Kahn test was negative. The blood value for the nonprotein nitrogen was 28 mg. per 100 cc.; the total protein was 7 gm. per 100 cc., with an albumin fraction of 4.2 gm. per 100 cc. and a globulin of 2.8 gm. per 100 cc. The blood chlorides were 100 mEq. a liter; the sodium, 135 mEq. a liter; the icteric index, 5 units; and the value for diastase, 8 units. An x-ray of the chest showed the heart to be normal in size. Considerable bilateral hilar adenopathy with parahilar streaky extension was noted. Views of the paranasal sinuses failed to demonstrate abnormalities. X-rays of hands and skull likewise revealed normal structures. A dermal tuberculin test with old tuberculin 1:1000 failed to elicit any reaction.

Course.—There was a low grade fever not exceeding 100.2 F. orally. The patient was treated symptomatically without significant improvement. On the seventh hospital day a rapidly increasing swelling involving both parotid glands and extending into the retromandibular and submaxillary areas developed in the patient. There was mild tenderness over the affected region, and a definite nodularity could be felt. The consultant in contagious diseases considered these findings as secondary to the systemic disease and not due to epidemic parotitis. Meanwhile, the consultant opthalmologist had completed his examination and reported his findings as granulomatous iridocyclitis compatible with Boeck's sarcoidosis. The dermatological consultant regarded the manculopapular skin eruption of the legs as compatible with sarcoidosis. A biopsy of the parotid gland was suggested, but permission was refused by the patient.

The patient's condition remained unchanged without further progression of the involved areas until September 21, when she signed her release and, despite advice to the contrary, left the hospital.

COMMENT

There is little doubt that our case fulfilled all the criteria of uveoparotid fever as manifested by uvetitis, bilateral parotitis, and a low-grade fever. Additional evidence of Boeck's sarcoidosis was present in form of a generalized and marked mediastinal lymphadenopathy. There was a skin eruption suggesting sarcoidosis; there was a negative dermal tuberculin reaction so frequently encountered in sarcoidosis, and there was a history of exposure to tuberculosis. There was no involvement of the osseous system and no hyperglobulinemia.

Our case was remarkable in that failing vision preceded other symptoms by many months. In fact, it was only after hospital admission that the parotitis suddenly made its appearance and suggested the possibility of uveoparotid fever. That ocular symptoms can precede other manifestations of uveoparotid fever and sarcoidosis is also apparent in the case reported by Kirby and Armstrong.[6] It would seem reasonable to assume that the true nature of an obscure uveitis with failing vision might be disclosed by a thorough and systematic search for evidence of sarcoidosis. In view of the recent advancements in the treatment of tuberculosis, the early diagnosis of sarcoid uveitis may have added significance in future therapeutic endeavours. It is readily admitted that the old controversial question of whether Boeck's sarcoidosis is a disease per se, or a special form of tuberculosis has not been settled. Recent findings demonstrating a tuberculin neutralizing factor in the serum of patients with sarcoidosis [7] may be considered additional evidence for a definite though obscure relationship of this disease to tuberculosis.

SUMMARY AND CONCLUSIONS

A case of Heerfordt's uveoparotid fever is presented. Failing vision due to sarcoid uveitis preceded by many months other manifestations of uveoparotid fever and sarcoidosis. A thorough search for eveidence of sarcoidosis is suggested in any case of obscure uveitis.

104 S. Michigan Blvd.

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DETERMINATION OF VENOUS PRESSURE WITHIN ESOPHAGEAL VARICES

Major Eddy D. Palmer
Medical Corps, United States Army

A knowledge of the pressure within esophageal varices may be important in evaluating the success of short-circuiting operations for portal hypertension. The theoretical and practical implications of such information are quite obvious, particularly as they apply to immediate estimations of the patency of the shunt, possible sources of hemorrhage continued in the postoperative period, and slight changes in the postoperative portal pressure with the passage of time.

Measurements of the pressure may be made during esophagoscopy with the simple equipment used for the sclerosing treatment of esophageal varices—esophagoscope and injecting needle—plus a water manometer such as that used in determining spinal fluid pressure. But as simple as is the equipment, the technique is very difficult, and one is often hard put to judge the validity of the readings obtained. One of the two main difficulties is that of accomplishing the procedure without exerting pressure on the more proximal segment of the varix with the end of the esophagoscope, thus increasing the pressure within the vein. The other difficulty involves the

From the Gastrointestinal Section, Walter Reed Army Hospital, Washington, D. C.

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obtaining of readings at a time when the patient's thorax is at complete rest in partial expiration, so that a Valsalva or reversed Valsalva effect does not falsely influence the intravenous pressure.

Intravariceal pressures have been measured on 14 occasions in six patients, usually just prior to injection therapy. The readings obtained on 12 occasions had to be discarded because there was uncertainty as to whether the needle had been in proper position or whether there had been pressure exerted on the proximal portion of the varix. The Eder-Hufford esophagoscope and the Eder injecting needle (21 gauge with 2.5 mm. shaft) were used. From the point of the needle to the base of the manometer the length of the apparatus measured 65 cm. Isotonic saline solution was used as the counterbalancing medium, in a system which was, of course, open.

REPORT OF CASES

CASE 1.—A 28 year old man was hospitalized because of sudden massive hematemesis. The diagnosis of Banti's disease was made, the clinical studies showing, among other things, large esophageal varices and normal liver. The spleen was removed and an end-to-side spleno-renal shunt made. The venous pressure in a mesenteric vein was 310 mm. of saline solution prior to construction of the shunt, and 110 mm. at the completion of the operation. Postoperatively, the patient did well; an esophagogram failed to demonstrate varices, and two intravenous pyelograms showed the left kidney to be normal. The patient was returned to full military duty. Five and a half months after the operation, minor hematemesis led to rehospitalization, and 10 days later there was another brief but serious hemorrhage. Complete gastrointestinal x-ray studies and gastroscopy gave no evidence of a bleeding source, but esophagoscopy showed "minor, probably inconsequential, varices" just above the cardia. An intravenous pyelogram again indicated normal function in the left kidney, suggesting adequate renal venous flow. It was felt that the vascular anastomosis was probably still patent. An unrelated circumstance precluded attempts to confirm the matter by postprandial comparisons of blood sugar levels drawn from the antecubital vein and, by catheter, from the vena cava at the level of the left renal vein. In view of the fact that the varices were the only demonstrable potential bleeding source, sclerosing therapy was considered. Prior to the first treatment, however, the pressure within one of the varices was measured, under esophagoscopic conditions which were felt to give valid readings. Two determinations showed pressures of 125 and 110 mm. It was felt that these readings proved the patency of the spleno-renal shunt, and that the varices should be considered merely subclinical remnants of the previous portal hypertension.

CASE 2.—A 43 year old white man had first been studied three years previously because of hematemesis. At that time he was found to have advanced Laennec's cirrhosis with esophageal varices. Hemorrhage continued at intervals during the next three years, and he was then hospitalized for operation. A portacaval shunt was made. Immediately after the operation, esophagograms failed to reveal the previously demonstrated varices, but esophagoscopy and gastroscopy showed, as they had prior to operation, rather large varices in both organs. There was, however, no further bleeding. At esophagoscopy six weeks after operation the venous pressure readings, made under conditions felt to be satisfactory for valid determinations, were 135 and 135 mm. Such a pressure level was felt to indicate that the operation had accomplished the desired effect—an effect which could not be appraised by mere visualization of the varices.

CONCLUSION

Measurement of the pressure within esophageal varices by means of a needle introduced by way of the esophagoscope may give information, not obtainable by other means, useful in the evaluation of the success of portal-shunt operations.

COUNCIL ON PHARMACY AND CHEMISTRY

REPORT TO THE COUNCIL

The Council has authorized the publication of the following report from the Committee on Pesticides.

ROBERT T. STORMONT, M.D., *Secretary.*

The following article is the third in a series on aspects of pesticides of immediate medical interest. The Committee wishes to acknowledge the assistance of the following persons who reviewed the manuscript: Dr. J. M. Barnes, Secretary, Toxicity Committee, Medical Research Council, England; Dr. M. J. Dallemagne, University of Liege, Belgium; Dr. Edward A. Doisy Jr., St. Louis University; Dr. Francis F. Heyroth, University of Cincinnati; Dr. Edward F. Knipling, United States Department of Agriculture, Washington, D. C., and Dr. Bernard P. McNamara, Army Chemical Center, Maryland.

BERNARD E. CONLEY, *Secretary.*
Committee on Pesticides.

TOXIC EFFECTS OF TECHNICAL BENZENE HEXACHLORIDE AND ITS PRINCIPAL ISOMERS

Benzene hexachloride is one of the newer synthetic insecticidal agents used in the control of insects of economic and public health importance. Like DDT, it has been known as a chemical entity for many years but needed the stimulus of entomologic research to bring it out of laboratory obscurity. It was first synthesized by the photochlorination of benzene by Michael Faraday in 1825. The insecticidal properties of the crude chlorination product were discovered independently, almost simultaneously, in France and England at the beginning of the last decade. Different samples of the crude chemical gave varying results in early trials and investigations were directed toward uncovering the insecticidal fraction of the product. Additional studies in England in early 1943 showed that greatest activity resided in the gamma isomer which composed 10 to 35% of the technical mixture. The association of this isomer with insecticidal activity fostered further research on the improvement of technical preparations of benzene hexachloride which has culminated in the commercial production of essentially pure (99%) gamma benzene hexachloride, now widely known as lindane.

Although incorrect chemically, the name benzene hexachloride and its abbreviation, BHC, have been generally accepted as common designations for commercial mixtures of the stereoisomers of 1, 2, 3, 4, 5, 6-hexachlorocyclohexane. Five isomers have been isolated of which the gamma isomer is of greatest entomologic and medical interest. Lindane is the coined, common name for essentially pure grades of this isomer which are used for agricultural and related purposes. The generic name, gamma benzene hexachloride, has been adopted by the Council on Pharmacy and Chemistry for this constituent as used in medicinal preparations.

In the pure state, the isomers of benzene hexachloride are well defined white crystals which are without pronounced odor but possess a bitter taste. Technical or commercial benzene hexachloride is a cream-colored, crystalline compound which is distinguished by a persistent and penetrating musty odor that varies somewhat with the method of manufacture.

The structural formula may be represented as follows:

1,2,3,4,5,6-hexachlorocyclohexane

Technical benzene hexachloride is a relatively stable preparation, with a vapor pressure which renders it sufficiently volatile to enable it to act as a fumigant, although reducing its residual effectiveness in comparison with DDT. It exhibits the same instability to alkalis as DDT, but it is more stable than the latter in the presence of metals and their salts. The crude mixture is

insoluble in water but its solubility in organic solvents varies with the nature and concentration of the several isomers and the impurities present. Technical benzene hexachloride and lindane may be used in dusts, in wettable powders, in solutions of organic solvents, and as a constituent of paints. The technical product and, to a lesser extent, lindane, produce off-flavor in several types of agricultural crops and in some processed foods during storage, thus limiting their use. Other uses are limited by its objectionable odor, especially that associated with technical benzene hexachloride. Because of these factors and the relative lack of insecticidal effectiveness in its constituents other than the gamma fraction, technical benzene hexachloride of a higher gamma content and insecticide preparations of lindane are being produced.

PHARMACOLOGY

The pharmacology of technical benzene hexachloride and its principal isomers has been as intensively investigated as any chlorinated hydrocarbon insecticide, with the possible exception of DDT. Nevertheless, much remains to be learned concerning the biologic complexities of the metabolism and pharmacologic actions of the technical mixture and its several constituents. Comparatively little is known about the detoxification mechanisms and the influence of nutrition and environment on the susceptibility or resistance of various animal species to poisoning from these compounds. Even less is known about the effects of technical benzene hexachloride or its various components on enzyme systems in animal organisms. These and other deficiencies in basic knowledge are common to the chlorinated hydrocarbon insecticides and a number of drug and drug-like materials in common use. Unfortunately, the lack of such information precludes precise statements about many aspects of the metabolism of and susceptibility to technical benzene hexachloride and lindane.

Action.—Animal studies indicate that technical benzene hexachloride acts as a stimulant to the central nervous system and produces hyperirritability, lack of muscular coordination, convulsions, and death. That the different isomers of technical benzene hexachloride vary in their pharmacologic action is most evident in the antagonism between the gamma and delta isomers when separately or successively administered intravenously. The gamma isomer is a strong excitant of the central nervous system and produces acute responses in animals generally similar to those induced by the technical product. The delta isomer is a depressant of the central nervous system tending to antagonize the stimulating effects of the gamma isomer. The alpha and beta compounds are more intermediate in their action. The alpha isomer predisposes to an initial state of hyperexcitability which is followed by depression, and the beta constituent provokes tremors and then depression of the central nervous system on prolonged administration.

The gamma isomer also acts more rapidly than technical benzene hexachloride, eliciting responses in laboratory animals which may continue for 24 hours, within 30 minutes after ingestion. Technical benzene hexachloride acts more slowly. Evidence of stimulation does not appear until one or two hours after ingestion and then may persist for as long as four days. The alpha isomer, which constitutes 50 to 70% of the technical preparation, may contribute to this delayed effect since stimulatory effects under the above conditions do not appear for 24 to 48 hours. Death of the animal may then be deferred for four or five days.

Metabolism.—Technical benzene hexachloride may be absorbed into an animal's body by way of the gastrointestinal tract, the respiratory tract, and from the skin. The rate and extent of absorption through these avenues of entrance varies depending on the physical properties of the insecticide formulations and the physiologic characteristics of the tissues involved. Absorption of the technical mixture from the alimentary tract is not readily accomplished. The presence of fat or other lipoids facilitates penetration of the intestinal barrier. Cutaneous absorption of the material from oil solutions has been firmly established. Absorption of dusts from the skin of animals is known to occur, but less is known about absorption from the respiratory tract. Physicochemical factors such as the size of particulate matter in dusts, fogs, mists, and smoke concentrations, the duration of exposure to vapor, and the presence of absorbable vehicles in the formulation influence the ease and extent to which dangerous amounts of technical benzene hexachloride or lindane may be admitted to the body by this route.

On entrance into the animal body, technical benzene hexachloride is distributed to the various organs and tissues. It has been found in the blood, liver, spleen, adrenal glands, muscle tissues, brain, kidney, and fat of treated animals. Storage is greatest in fat tissues although it is also deposited in significant amounts in the liver and kidneys. The distribution and extent of storage of the several isomers in various organs varies with individual isomers and, perhaps to some degree, with the species of animal exposed.

Striking differences in fat storage of the various isomers of technical benzene hexachloride have been reported. Maximum storage of the isomers is accomplished in about six weeks, and the greatest accumulation occurs with the beta isomer, which is also stored the longest. The concentration of the alpha isomer built up by tissue lipids is twice that which is contained in the whole diet. The beta isomer is concentrated to 10 times the dietary concentration, and the gamma and delta isomers are deposited at the same concentration as contained in the diet. Emulsifiers in the formulation increase absorption, thereby enhancing storage of the isomers. Animal studies indicate that storage is higher in females than in males. Young animals have also been found to store more benzene hexachloride than older animals. The significance of these findings lies in the direct correlation between the storage of the several isomers in fat tissue and their ability to cause chronic poisoning.

Gamma benzene hexachloride is eliminated in the urine, in the feces, and in the milk of lactating animals. In rats on a diet of 100 and 500 PPM of the gamma isomer it is rapidly eliminated and completely disappears from the body within one to two weeks. A maximum amount is excreted in the milk in approximately 24 hours after feeding is stopped. The alpha isomer is rapidly mobilized from the fat, disappearing in about four weeks, and the delta fraction is excreted at about the same rate as the gamma. In contrast, the beta compound requires an estimated three to six months for complete removal from the body following cessation of exposure to the toxicant. The significance of the mere presence of the isomers in fat tissue is unknown. Damage may occur, however, when these agents come into contact with other tissues during transport to and from the fat. It can be especially serious when such tissues have experienced previous injury since it may lead to further impairment of function, a complication common to most chlorinated hydrocarbon compounds and the basis for present concern about the long-term implications of cumulative chemicals of this nature.

Little is known about the metabolic fate of technical benzene hexachloride or its constituents. In vitro tests suggest that the gamma isomer is at least partially destroyed in the liver. A material giving an ultraviolet absorption-curve similar to that for 1,2,4-trichlorobenzene was found in the neutral and acidic fractions of urine of laboratory animals receiving the alpha isomer. Further tests for this intermediate were inconclusive and led to the suspicion that alpha benzene hexachloride has a highly variable metabolism. In vivo studies indicate that stereochemical changes in the tissues involving the transformation of the other isomers to the more acutely toxic gamma isomer do not occur. Little information is available on the influence of benzene hexachloride or its components on enzyme systems.

Since consistent findings are lacking, only the broadest generalities concerning susceptibility of various animal species to technical benzene hexachloride and lindane are possible. Available evidence points to the general conclusion that dogs and rabbits may be the mammals most susceptible to gamma benzene hexachloride, followed by mice, rats, guinea pigs, and the larger domesticated animals. Diet and sex appear to be secondary to the age and the absorptive capacity of the animals. Young calves are much more susceptible than adults of the species. Wide variations occurring even among individuals in a given species emphasize the dominant role the absorption mechanism plays in susceptibility. Tolerance to progressively increased concentrations of benzene hexachloride or the gamma isomer has not been observed.

TOXICOLOGY

Technical benzene hexachloride is about equal to DDT in acute toxicity to man and other warm-blooded animals. The gamma isomer is the most toxic fraction of the technical mix-

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ture. It is about twice as toxic as DDT, and the alpha, delta, and beta constituents have been estimated to be approximately one-half, one-fourth, and one twenty-fourth as poisonous, respectively. The other known isomers are present in the technical mixture in such small amounts that they do not contribute significantly to the chronic toxicity of technical benzene hexachloride, which is about one-half that of DDT. In the technical mixtures, the beta isomer plays the most important role in chronic intoxication, since it is stored in the fat tissue longer than the other isomers and since, being the most chemically stable in the body, it is the least readily destroyed. On a similar comparative basis the gamma isomer is thought to be about one-quarter as poisonous because of its minimal storage, rapid elimination, and decreased disposition to tissue damage.

Oral Toxicity.—When technical benzene hexachloride is administered orally, it is of a relatively low order of acute toxicity. A wide range of dosage may prove toxic or fatal because of the varying amounts of the several isomers which may appear in technical mixtures. It has been estimated that approximately 600 mg./kg. or about an ounce of technical benzene hexachloride containing 15% gamma isomer could be fatal in a single dose for an adult. The estimated single, oral, fatal dose for lindane is less than one-quarter this amount. These estimates have not been completely confirmed by human experience although a case noted elsewhere in this report describing an attempted suicide suggests that these are reasonable approximations of the amounts which could be fatal for adult human beings.

The chronic oral toxicity of essentially pure gamma formulations is not as great as that of the technical product because of the absence of the beta isomer. Liver degeneration and nutritional disturbances, however, have been induced in dogs exposed to the gamma isomer over long periods of time. Nevertheless, the likelihood of cumulative effects is not as great because of the fairly rapid loss of this constituent from fat depots.

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Cutaneous Toxicity.—Technical benzene hexachloride is a moderate skin irritant without demonstrated sensitizing properties. Irritating effects to the eyes, skin, and mucosa are principally attributable to the delta isomer and may be elicited by both dry forms and solutions of the technical preparation. Irritation of the skin is most noticeable when perspiration is present, and application of water to the affected areas has been found to increase the stinging sensation. Systemic toxic reactions from skin contact with dry formulations of technical benzene hexachloride are fairly remote because of the poor absorption of the compound in this form. The danger of absorption is increased with prolonged handling of powders and dusts because of the possibility of small particles penetrating the integument. Prolonged frictional contact of the skin with technical benzene hexachloride-impregnated cloth may cause systemic toxic reactions if the chemical is present in sufficient quantities. Animal experiments indicate that the amounts of gamma isomer which could be used safely to impregnate clothing would be too small to be advantageous for this purpose.

Cutaneous absorption of both oily and aqueous suspensions of gamma benzene hexachloride has resulted in fatalities in laboratory animals. Death among cattle from dips and sprays of both lindane and the technical material has also been reported. Solutions of either the gamma or the technical mixture in lipoid and other organic solvents are readily absorbed and offer the greatest danger. The high dermal toxicity of the gamma isomer in lipoid solvents is especially noteworthy. In solution with kerosene or other solvents of a similar nature, it penetrates the skin rapidly. The lethal dose for rabbits by a single cutaneous exposure has been reported to be similar to that for nicotine.

Since the gamma isomer offers skin hazards in the presence of lipoid material, its use in an ointment for scabies is recommended only under medical supervision. It may be used safely in 1.0% concentrations if prolonged or repeated applications are avoided and if precautions are taken to prevent contact with the eyes or other sensitive areas about the face. The presence of secondary infection does not interfere with this medicinal use.

Inhalation Toxicity.—Little precise information has been recorded in the medical literature on the inhalation effects of benzene hexachloride. Signs of illness were not observed in experimental animals exposed to the vapors of the gamma isomer for several months. In a six months experiment with exposure to dusts of benzene hexachloride, liver and kidney damage in one of ten mice and questionable damage in a chicken were noted. Initial pneumonitis and pulmonary granulomas observed in the remaining animals appeared to be foreign-body reactions to the clay used in the dust. In a second experiment, five mice were exposed for one hour to an atmosphere containing 10 mg. per liter of technical benzene hexachloride. One mouse died in two days, the remaining animals had brief spasms, but recovered in two days. These studies suggest that the vapor and dust hazards from the technical compound may be of a low order; nevertheless, the customary precautions against prolonged or excessive inhalation of vapors or dusts should be observed, and more care should be taken when oil base sprays are used.

Pathology.—Benzene hexachloride gives a pathologic picture resembling that of DDT, with liver damage the most prominent feature. The beta isomer is mainly responsible for liver necrosis although the gamma isomer alone has caused such injury. A moderate degree of hyaline granular degeneration of the renal convoluted tubular epithelium, as well as mild changes in the bone marrow, lymphoid tissues, adrenal cortex, and cerebrum, have been observed in animals poisoned by the technical mixtures of the isomers. Considered anatomically, these lesions have not always been sufficient to cause death. The alpha isomer produces the same type of liver and renal damage as the gamma isomer, and general emaciation, atrophy of various tissues, and lesser injury to other viscera also have been noticed.

The pathologic findings in acute fatal gamma poisoning have not always been characteristic in animals. There is a marked distention of the stomach and intestines with gas and fluid, and, in several fatalities in large animals, rupture of the stomach has been an unexplained finding. Congested edematous lungs, dark fluid blood, distended liver of black or bluish color with patches of necrosis, contracted dark spleen, and a pale soft brain mottled with pin-point hemorrhages have also been found.

Symptoms.—The symptoms which may be expected in acute poisoning from technical benzene hexachloride are excitation, clonic-tonic convulsions, followed by hyperirritability to external stimuli and, finally, depression. Intoxication from benzene hexachloride of high gamma content or from the gamma isomer alone is manifested by restlessness, micturition, intermittent muscular spasm, loss of equilibrium, convulsions, and then collapse and death. The potassium level of the blood may increase, but the calcium concentration remains the same. The course of symptoms depends largely on the proportion of the isomers in the technical compound, the onset and severity being in direct proportion to the amount of gamma isomer which is present. The immediate cause of death is functional disturbances of the central nervous system, and especially of the respiratory center.

Chronic symptoms are predominantly those of nervousness and lack of coordination, their severity depending on the frequency and level of exposure. Nausea, weight loss, and general emaciation are signs which may be anticipated from this type of exposure to the technical mixture.

The diagnosis of benzene hexachloride poisoning should be based mainly on a history of exposure to the product since poisoning by other pesticides, as well as the presence of other neurological conditions, should be considered.

There is no specific antidote for poisoning from benzene hexachloride or its gamma isomer. Treatment should be directed toward removing the ingested material from the stomach and intestinal tract by gastric lavage and saline catharsis and counteracting the central nervous system stimulation. Since the preparation is slowly absorbed after ingestion, prompt institution of removal procedures will rid the body of large amounts of the toxicant, but oil cathartics for intestinal evacuation should not be given because oils favor absorption.

Central nervous system manifestations can be antagonized by the administration of a barbiturate, phenobarbital being the best physiologic antidote. Subsequent symptomatic doses of a short-acting barbiturate, such as sodium pentobarbital, may be necessary to control the violent convulsive seizures. Epinephrine should be avoided because it might produce ventricular fibrillation. After recovery from the acute stages of poisoning, the patient should be kept on a fat-free or low-fat diet and should be treated for liver and renal damage.

Precautions.—Technical benzene hexachloride and lindane are less dangerous on an overall basis than certain other types of chemicals in common use on the farm and in industry. Nevertheless, these pesticidal chemicals and many of the other ingredients used in their formulations have intrinsic toxic properties which demand that caution be observed in their handling and application. The following precautions, based on usage and experience with benzene hexachloride and related types of compounds, are believed to provide adequate protection under various circumstances and types of exposure:

1. *Dusts and Powders:* Special care should be taken to avoid excessive inhalation or skin contact when handling, mixing or applying BHC dusts and powders. Protective measures sufficient to keep the material out of the eyes and mouth and away from the sensitive parts of the body should be used. A change of the clothing after each day's operations and the usual practice of washing the face and hands after using these formulations and before eating should be rigidly followed. Containers in which they are kept or stored should be plainly labeled and kept out of the reach of children, animals, and irresponsible persons. Unused portions of these preparations and the containers in which they have been mixed should be treated in the same fashion.

2. *Emulsions and Liquids:* Persons handling BHC emulsions and liquids (especially concentrates) should wear protective clothing and use suitable equipment. In formulating and mixing operations, the user should combine adequate ventilation with protective equipment and clothing, including respirators, goggles, solvent-resistant gloves, aprons, and boots. In field mixing operations, he should wear protective gear to prevent excessive skin and respiratory exposure. Material splashed or spilled on the clothing, on exposed portions of the body, or in working areas should be removed immediately. When inflammable or volatile solvents are present in the formulation, the customary precautions concerning smoking, exposed flames, and defective electrical equipment should be observed.

3. *Sprays and Mists:* Persons engaged in extensive spraying or fogging operations should wear respirators which protect the vulnerable parts of the face. Protective clothing should be supplemented with greaseless skin lotions or ointments on body surfaces exposed to solvents and other irritants in the formulation. The effectiveness of greaseless skin preparations against specific irritants has not been proven in all instances; nevertheless, some degree of mechanical protection can be expected.

Clothing wetted with mists or sprays should be changed immediately, and a bath, followed by a complete change of clothing, is advised after each day's operation. Residual liquid in spray tanks and the washings from spray equipment should be emptied in places where they will not drain into wells, streams, or ponds accessible to human beings, animals, or fish.

Wettable powders and other types of liquid sprays are not recommended for use on very young animals. Calves are known to be injured by them, and it is believed the young of other animals are highly susceptible.

CLINICAL EXPERIENCE

Clinical reports of human poisonings from the use of technical benzene hexachloride or lindane have been comparatively infrequent in the United States. Exposure to dusts of the technical mixture in field application and bagging operations has caused irritation of the upper respiratory tract, eyes, and skin; but these reactions were of minor consequence and required medical assistance in only a few instances. Similar reactions to powdered forms of the individual alpha, delta, and beta isomers have been experienced by workers engaged in their manufacture and formulation. Unusual symptoms in two workers engaged in preparing batches of gamma benzene hexachloride for field tests have also been reported. It was suggested that these symptoms might have been attributable to absorption of the compound through the skin.

Moderate and severe reactions in three field workers applying technical benzene hexachloride in a petroleum-solvent base by means of a thermal aerosol generator have also been observed. During the period of application, the wind fluctuated both in direction and intensity, enveloping the workers for varying periods of time. One worker is stated to have received a maximum exposure of approximately 20 minutes' duration. Several hours later he became ill, turned pale, and experienced chills and fever. During the night he had severe headaches and perspired profusely. A lack of normal equilibrium and depth perception was also noted. The patient recovered in approximately ten days with no apparent after-effects. The other two workers received less severe exposures. Although their symptoms were similar to those of the first worker, they were less intense and of shorter duration. Severe headaches, aching bones and joints, high temperature (104 F.), chills, cold sweats, dizziness, and slight loss of equilibrium were experienced. Recovery occurred in 24 and 36 hours, respectively. Illness in all cases was attributed to the inhalation of excessive amounts of the insecticidal smoke, although certain of the symptoms reported are not commonly associated with this type of poisoning.

An attempted suicide involving the ingestion of approximately 30 gm. of a 50% wettable powder of benzene hexachloride whose content of the gamma isomer was about 15% has been reported to the Committee. The onset and train of symptoms were stated to be similar to those observed in experimental animals.

Two suspected, but unconfirmed, fatalities of BHC spray products have been brought to the attention of the Committee. In both instances, the insecticide was considered to have played a secondary, though contributory, role in the cause of death. A third case, involving the convulsive death of a child living a few yards away from an insecticide mixing plant, was reported in the medical literature. Subsequent investigation failed to disclose anything which would support the statement that benzene hexachloride was implicated.

In Argentina, occupational dermatitis in workmen exposed to benzene hexachloride is claimed to have reached as high as 25% (Francone, M. P., and Chena, W.: *Semana méd.* **55**:573, 1949). This alarming incidence of reaction was soon decreased when prophylactic measures and proper hygiene were introduced. The authors presented 39 cases of dermatitis in persons engaged in grinding and mixing activities, chemical manipulations, and other manufacturing procedures. In all cases except one, the workers were in intimate contact with benzene hexachloride. Reaction rates varied from single contacts to those involving several months exposure. The disorders, in most instances, were of short duration and disappeared without sequels.

A fatal case of poisoning caused by the accidental ingestion of a benzene hexachloride solution was reported in Germany (Kwoczek, J.: *Med. Monatsschr.* **4**:25, 1950). Fifteen cubic centimeters of a 30% solution of benzene hexachloride in an unspecified organic solvent was ingested by a five-year-old girl weighing approximately 50 pounds (25 kg.). Shortly after, difficult breathing, cyanosis and clonic-tonic convulsions set in, and some of the solution was vomited. Three hours later, the child was hospitalized, her stomach was pumped and therapy to restore a failing circulation was vainly instituted. Postmortem examination disclosed pulmonary edema, dilation of the heart, fatty infiltration of the liver, and extensive necrosis of blood vessels in the lungs, kidney, and brain.

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NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

Progesterone-U.S.P. (See New and Nonofficial Remedies 1951, p. 361).

Solution Progesterone: 10 cc. vials. A solution in sesame oil containing 10 and 25 mg. of progesterone in each cubic centimeter. Preserved with 0.5% chlorobutanol. Meyer Chemical Company, Detroit.

Pentobarbital Sodium-U.S.P. (See New and Nonofficial Remedies 1951, p. 246).

Tablets Pentobarbital Sodium: 0.1 gm. Physicians' Drug & Supply Company, Philadelphia.

Aminophylline-U.S.P. (See New and Nonofficial Remedies 1951, p. 297).

Tablets Aminophylline: 0.1 gm. S. J. Tutag & Company, Detroit.

Diethylstilbestrol-U.S.P. (See New and Nonofficial Remedies 1951, p. 340).

Tablets Diethylstilbestrol: 5 mg. Keith-Victor Pharmacal Company, St. Louis.

Mephenesin (See New and Nonofficial Remedies 1951, p. 165).

Tablets Mephenesin: 0.5 gm. Kremers-Urban Company, Milwaukee.

Dihydrostreptomycin-U.S.P. (See New and Nonofficial Remedies 1951, p. 130).

Solution Dihydrostreptomycin Sulfate: 2 cc. and 10 cc. vials. A solution containing dihydrostreptomycin sulfate equivalent in activity to 1 gm. and 5 gm. of dihydrostreptomycin base, respectively. Buffered with 1.5% sodium citrate. Preserved with 0.2% sodium bisulfite. Merck & Company, Inc., Rahway, N. J.

Phenylephrine Hydrochloride-U.S.P. (See New and Nonofficial Remedies 1951, p. 198).

Solution Neo-Synephrine Hydrochloride 0.2%: (For parenteral Use). 2 cc. ampuls. An isotonic solution containing 2 mg. of phenylephrine hydrochloride in each cubic centimeter. Preserved with 0.1% sodium bisulfite. Winthrop-Stearns, Inc., New York.

Riboflavin-U.S.P. (See New and Nonofficial Remedies 1951, p. 448).

Tablets Riboflavin: 2.0 mg. and 5.0 mg. Physicians' Drug & Supply Company, Philadelphia.

Secobarbital Sodium (See New and Nonofficial Remedies 1951, p. 251).

Suppositories Seconal Sodium: A suppository containing 32.5 mg. of secobarbital sodium. Eli Lilly & Company, Indianapolis.

COUNCIL ON FOODS AND NUTRITION

The following products, intended for use in low sodium and other therapeutic diets, have been accepted as conforming to the rules of the Council. Data regarding composition represent the best available information, which is based on submitted reports of analyses. The Council has requested continuing analytical studies, especially of the sodium content of products intended for use in low sodium diets, because of the natural variations in the composition of processed foods.

JAMES R. WILSON, M.D., *Secretary.*

Reid Murdoch & Company, Division of Consolidated Grocers Corporation, Chicago.

MONARCH BRAND DIETETIC PACK STRAINED BEETS consist of the vegetable itself, packed in water without any added salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 6.69%, crude fiber 0.58%, fat (ether extract) 0.03%, protein (N × 6.25) 1.24%, ash (minerals) 0.80%, sodium 23 mg./100 Gm., potassium 193 mg./100 Gm.

Calories.—0.32 per gram; 9.1 per ounce.

Use.—For use in low sodium and other therapeutic diets.

MONARCH BRAND DIETETIC PACK STRAINED CARROTS consist of the vegetable itself, packed in water without any added salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 5.94%, crude fiber 0.62%, fat (ether extract) 0.05%, protein (N × 6.25) 0.70%, ash (minerals) 0.74%, sodium 33 mg./100 Gm., potassium 239 mg./100 Gm.

Calories.—0.27 per gram; 7.7 per ounce.

Use.—For use in low sodium and other therapeutic diets.

MONARCH BRAND DIETETIC PACK STRAINED PEAS consists of the vegetable itself, packed in water without any added salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 8.85%, crude fiber 0.65%, fat (ether extract) 0.29%, protein (N × 6.25) 4.01%, ash (minerals) 0.66%, sodium 21.0 mg./100 Gm., potassium 105 mg./100 Gm.

Calories.—0.54 per gram; 15.3 per ounce.

Use.—For use in low sodium and other therapeutic diets.

MONARCH BRAND DIETETIC PACK STRAINED SPINACH consists of the vegetable itself, packed in water without any added salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 3.0%, fat (ether extract) 0.4%, protein (N × 6.25) 2.7%, ash (minerals) 0.8%, sodium 2.0 mg./100 Gm., potassium 572 mg./100 Gm.

Calories.—0.26 per gram; 7.4 per ounce.

Use.—For use in low sodium and other therapeutic diets.

The following products have been accepted as conforming to the rules of the Council.

JAMES R. WILSON, M.D., *Secretary.*

Beech-Nut Packing Company, Canajoharie, N. Y.

BEECH-NUT STRAINED SWEET POTATOES. Ingredients: Sweet potatoes, salt and water sufficient for preparation.

Analysis (submitted by manufacturer).—Total solids 20.58%, moisture 79.42%, ash 1.08%, fat (ether extract) 0.21%, protein (N × 6.25) 0.96%, crude fiber 0.71%, carbohydrate (other than crude fiber) 17.62%.

Vitamins and Minerals	Per 100 Gm.
Carotene	2.21 mg.
Thiamine	24.0 mcg.
Riboflavin	32.0 mcg.
Nicotinic acid	0.44 mg.
Ascorbic acid	17.34 mg.
Calcium	26.0 mg.
Phosphorus	31.0 mg.
Iron (total)	0.69 mg.
Iron (available)	0.32 mg.
Copper	0.11 mg.

Calories.—0.76 per gram; 21.5 per ounce.

Use.—For use in the feeding of infants, convalescents and others requiring a soft diet.

BEECH-NUT STRAINED BANANA. Ingredients: Frozen banana puree, banana flakes, sugar, lemon juice concentrate, calciumpectinate and water sufficient for preparation.

Analysis (submitted by manufacturer).—Total solids 26.24%, moisture 73.76%, ash 0.53%, fat (ether extract) 0.22%, protein (N × 6.25) 0.73%, crude fiber 0.35%, carbohydrate other than crude fiber (by difference) 24.41%.

Vitamins and Minerals	Per 100 Gm.
Thiamine	20.0 mcg.
Riboflavin	23.0 mcg.
Nicotinic acid	0.39 mg.
Ascorbic acid	0.35 mg.
Crude carotene	0.18 mg.
Calcium	11.0 mg.
Phosphorus	23.0 mg.
Iron (total)	0.43 mg.
Iron (available)	0.38 mg.
Copper	0.28 mg.

Calories.—1.05 per gram; 29.8 per ounce.

Use.—For use in the feeding of infants and young children.

The Chicago Dietetic Supply House Inc., Chicago.

CELLU BRAND DIETETIC PACK TUNA FISH. Ingredients: Light meat tuna packed in distilled water.

Analysis (submitted by distributor).—Total solids 30.6%, moisture 69.4%, protein (N × 6.25) 28.3%, fat (ether extract) 0.75%, carbohydrates (by difference) 0.15%, sodium 70 mg./100 Gm.

Calories.—1.22 per gram; 34.6 per ounce.

Use.—A useful adjunct for the planning of low fat, low sodium dietaries.

CELLU BRAND WHEAT-FREE RYE BREAD. Ingredients: Pure rye flour (bleached), brown cane sugar, shortening (100% cottonseed oil hydrogenated), salt, yeast and lactic acid (edible N.F. 85%).

Analysis (submitted by distributor).—Total solids 67.7%, moisture 32.3%, ash 2.4%, fat 4.2%, protein (N × 6.25) 6.3%, crude fiber 0.7%, carbohydrates other than crude fiber (by difference) 54.0%.

Calories.—2.81 per gram; 79.5 per ounce.

Use.—For use in certain allergy diets.

CELLU BRAND WHEAT FREE CAKE. Ingredients: Mandioca (sometimes called tapioca) flour, cane sugar, shortening (100% cottonseed oil hydrogenated), egg yolks, whole eggs, salt, vanilla (pure bean) and pure almond extract.

Analysis (submitted by distributor).—Total solids 84.0%, moisture 16.0%, ash 1.7%, fat 28.5%, protein (N × 6.25) 3.4%, carbohydrates (by difference) 51.0%.

Calories.—4.73 per gram; 134.0 per ounce.

Use.—For use in certain allergy diets.

Pratt-Low Preserving Company, Santa Clara, Calif.

PRATT-LOW BRAND PINEAPPLE (CHUNKS & TIDBITS) consists of the fruit itself, packed in juice without any added sugar or salt.

Analysis (submitted by distributor).—Total solids 15.7%, moisture 84.3%, ash 0.4%, fat (ether extract) 0.1%, protein (N × 6.25) 0.4%, crude fiber 0.4%, carbohydrates other than crude fiber (by difference) 14.4%.

Calories.—0.59 per gram; 16.9 per ounce.

Use.—For use in calory-restricted and other therapeutic diets.

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FIFTH GENERAL ASSEMBLY OF THE WORLD MEDICAL ASSOCIATION

The fifth general assembly of the World Medical Association was held in Stockholm, Sweden, Sept. 15 to 20, under the patronage of the King of Sweden. Dr. Dag Knutson, president of the Swedish Medical Association, extended a welcome to the members and visitors, the heartiness of which became evident on many occasions as the meeting progressed. Friendliness was apparent everywhere, and it, together with the medical and other information available to all, made many new friends for the Swedish medical profession, friends who are hoping for an opportunity to renew their acquaintances soon.

The World Medical Association was established four years ago, succeeding the Association Professionnelle Internationale des Médecins. An interesting account of the founding of the association appears in the July, 1951, issue of the *World Medical Association Bulletin*. Progress has been steady, and during each year there has been seen a degree of accomplishment that indicates the need for such an organization. The objectives of the World Medical Association are to promote closer ties among the national medical organizations and among the doctors of the world, to maintain the honor and protect the interests of the medical profession, to study and report on the professional problems that confront the medical profession in the different countries, to organize an exchange of information on matters of interest to the medical profession, to present the views of the medical profession to the World Health Organization, UNESCO, and other appropriate bodies, to assist all peoples of the world to attain the highest possible level of health, and to promote world peace. At the fifth assembly many problems of common interest were discussed, and participants left each meeting with a broader appreciation of the health problems of other nations, the work of the medical profession in these nations, and the need for further action. A brief abstract of the proceedings of the meeting will appear in an early issue of THE JOURNAL.

Retiring president Elmer L. Henderson, of the United States, in his address mentioned the goal the World Medical Association could seek in membership—representation from 60 nations and 500,000 physicians throughout the world. New members at the assembly were the medical associations of Thailand, Japan and Western Germany. The medical associations of Haiti and the Republic of South Korea were admitted to membership as the meeting progressed. Some of the achievements reported by Dr. Henderson for the last year included the development of relations with the World Health Organization and other international groups in the field of medicine and health, the planning of an international conference on questions of professional and technical education, the consideration of freer flow of essential medical supplies between countries, encouragement of the international use of nonproprietary names, the study of relief of medical and religious personnel held with prisoners of war, and the identification of medical personnel. Among the reports and other literature received by members of the association are copies of its studies, for example, on postgraduate medical education and specialist training, and the *World Medical Association Bulletin*, which now has a circulation of 10,000 and is self-supporting. This journal contains articles in the three official languages of the association, English, French, and Spanish.

One of the discussion-provoking reports presented to the assembly described medical services in Australia. This report pointed out that the medical profession of Australia had steadfastly refused to cooperate with the previous government because of its declared intention to nationalize medical services. So successful was this opposition that the government was unable to implement such plans. The governments changed and the minister for health of the new government said in part: "Our policy aims to improve the quality of medical service in its essential factors by stimulating individual and community effort. It makes the individual a partner of the Government, not its servant. One outstanding fact that has emerged from various schemes of socialization of medicine is that Government control of medical treatment, especially the handing-out of treatment for nothing, does not improve the standards of medical treatment or of national or individual health. The most that Government control has been able to do has been to retain the status quo ante. In most cases, however, there has come inevitably a steady deterioration of the morale of the people, loss of skill of the doctors, especially general practitioners, through the enormous wastage of time in filling in forms and consequent degeneration of the health of the patients. . . .

"Experience of the rest of the world in regard to health schemes indicates that the most likely system to satisfy all these requirements (essential factors for success of a health scheme) is one of voluntary insurance. Voluntary insurance will prove as valuable against unpredictable sickness as it has with life, shipwreck, theft and other risks." When these views were expressed at the general assembly meeting they were roundly supported as general principles worthy of the attention of other government officials. There seemed to be no doubt about the desire of those at the assembly to maintain freedom in medical care for the patient and physician, so that the best possible medical care could be provided without the stultifying influence of government domination.

One aspect of this meeting that was commented on repeatedly by visitors who were seeing for the first time the delegates of the World Medical Association in action was the way in which representatives of various countries, often with different practices and medical problems, could

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sit together and discuss so much in common, with so little difference of opinion. These newly initiated visitors were impressed with the thought that when questions of health are involved the interests of physicians are basically the same the world over, and when they are given the opportunity to meet and freely exchange information physicians can contribute much for the good of all countries. In the World Medical Association this is possible because the association is free from government control. It is supported by national medical associations such as the American Medical Association, and is not governed by policies defined by governments.

Dr. Elmer Henderson retired as president of the World Medical Association and was succeeded by Dr. Dag Knutson of Sweden. The president-elect chosen for the coming year is Prof. G. Krimpas of Greece, where the assembly will be held in 1952. In 1953 the assembly will meet in Holland, and in 1954 in Italy. Three members were elected to the council because of the expiration of terms of office. Dr. Pierre Glorieux of Belgium was elected to succeed himself, and Drs. Elmer L. Henderson of the United States and L. R. Mallen of Australia were elected to fill the other vacancies. Dr. T. C. Routley, Secretary of the Canadian Medical Association, who had served as chairman of the council for four years, was given a warm vote of thanks for his untiring efforts and able leadership. His work and that of the secretary-general, Dr. Louis H. Bauer, president-elect of the American Medical Association, and of the other officers and delegates have meant much in the development of the progress accomplished by the World Medical Association. The members also have made an immeasurable contribution by participating actively and with enthusiasm. Dr. Knutson in his presidential address said: "The W. M. A. embodies ideas of high quality well worth being promoted. The doctors of the world should be proud of their organization. They should make it through their work ever more worthy of their support and their pride. Ultimately this would bring to mankind if not health and happiness at least a better starting point from which one and as a possible consequence the other can be attained. And that is what we the doctors of the world must hope for and work for. That is, in fact, what we have always worked for in our own field, on the whole true to principles the wisdom and humanity of which has not been doubted for some two thousand years." Evidence of this unity of interest was obvious as one looked at the assembly meeting in Stockholm's beautiful parliament building, where simultaneous translations were being made for those not conversant with the language of the speaker and where this sign of modern technical progress seemed to blend so well with the seriousness of the subjects under discussion. Additional evidence of the common interests of physicians was seen at the social gatherings, where men and women from all nations met with understanding and enjoyment. At the meetings there were delegates and observers from more than 30 countries. At the banquet there were more than 300 persons present to enjoy the hospitality of the Swedish Medical Association. From the United States alone there were more than 40 observers in addition to officers, delegates, and alternate delegates, and there were observers from more than 20 other national and international organizations. It was inevitable that the fifth general assembly and the second medical editors conference, which followed the conclusion of the work of the assembly, should be successful. The planning, the participation, and the setting were overwhelming factors in favor of success.

It may seem like a long time before the sixth general assembly convenes in Greece in 1952, but time moves surprisingly quickly, and it is not too early for physicians to plan on attending this meeting. They can be assured of a warm welcome from the physicians in that country.

RED FEATHER CAMPAIGNS

Within the next two weeks, United Red Feather campaigns will be conducted in more than 1,500 communities throughout the nation. In a statement appearing elsewhere in this issue (p. 579), Dr. John W. Cline, President of the American Medical Association, points out that this year the contributed funds will sustain the United Defense Fund as well as numerous community health, welfare, and recreational activities. The United Defense Fund performs services of great importance, caring for the military through the United Service Organizations, assisting civilians in densely populated defense areas, establishing community projects through the United Community Defense Services, and providing clothing, blankets, and sewing material to the Koreans through the American Relief to Korea. Through the individual Community Chests, the Red Feather campaigns provide assistance for voluntary hospitals, clinics, nursing services, and other health and welfare agencies for citizens in lower income brackets. The extension of medical and health services to the needy by voluntary means deserves the whole-hearted support of the medical profession.

NEARLY A MILLION TRAFFIC DEATHS

According to figures released at the end of July, 1951, by the National Safety Council, 983,000 lives have been lost in traffic deaths since the advent of the automobile little more than 50 years ago. The council estimates that the 1,000,000th victim will be killed during the latter half of December of this year and that if the present rate of traffic deaths continues, a second million will be killed within 30 years. In the hope of postponing the estimated date of the 1,000,000th fatality, the council is undertaking an extensive campaign to focus public attention on the rising toll of traffic deaths. Members of the medical profession will be anxious to support efforts directed toward reducing automobile accidents, which now rank as the sixth major cause of death in the nation. The individual physician can cooperate with the National Safety Council by discouraging driving in patients with health impairments known to increase the risk of accidents, by publicizing the role of physical and mental disturbances in accident causation and by bringing home to the proper authorities the necessity for periodic mental and physical examinations for every driver.

ARTIFACTS IN THE ESTIMATION OF PROTEIN-BOUND IODINE

In the quantitative estimation of protein-bound iodine, the proteins of the serum are precipitated and then washed free of inorganic iodine. Thus the iodine that is finally estimated, the protein-bound iodine, is essentially iodine of the thyroid hormone. Under ordinary circumstances protein-bound iodine is regarded as a reliable index of thyroid function.

During the course of various diagnostic and therapeutic procedures, organic compounds containing large amounts of iodine are used. Some of these foreign substances are precipitated with the protein and are not removed by repeated washings, with resulting erroneously high values for the protein-bound iodine of serum. Man and Peters [1] studied the effect of three different radiopaque dyes used for roentgen visualization. The substances studied were iodoalphionic acid (priodax*), iodopyracet (diodrast*), and iodized oil (lipiodol*). Of the seven subjects who received the first dye, none having demonstrable liver, kidney, thyroid, or gallbladder disorders, in only one did the protein-bound iodine values fall to pretreatment levels within 10 weeks after the administration of the iodine-containing compound. These investigators suggest that it would not be advisable to determine the protein-bound iodine of the serum in a patient less than 12 weeks after the administration of iodoalphionic acid; in addition, the values should be checked by repeated analyses two weeks later. On the other hand, the elimination of iodopyracet is rapid; when normal kidney function is present, reliable values for the protein-bound iodine may be obtained after a period of two weeks. Iodized oil is excreted at a variable rate and slowly; indications are that deposits of the dye discharge iodine slowly into the blood stream for a long period of time and that part of this iodine is precipitated with the protein.

In cardiac conditions in which detection of derangements of thyroid activity is important, Meyers and Man [2] found that the protein-bound iodine values were low when mercurial diuretics had been given. After intramuscular administration of meralluride (mercuhydrin*) there was a lowering of the protein-bound iodine for at least 24 hours, depending on the rate of excretion of the mercury. These investigators suggested that the estimation of protein-bound iodine should be delayed for at least 48 hours after administration of meralluride. When the excretion of mercury is delayed, a longer period must be allowed to elapse. The falsely low values for protein-bound iodine are believed due to the formation of insoluble mercuric iodide or iodate during the process of digestion, these latter substances not being distillable as is iodine. Other mercurial dieuretics were not studied, though it is believed they should produce similar depressions on the level of protein-bound iodine.

Under ordinary circumstances the protein-bound iodine of the serum is a reliable index of activity of the thyroid gland. However, factors that are not related to functional activity of the thyroid gland can influence the results of this determination. Probably the skepticism of many clinicians regarding the ability of the laboratory to do this difficult test arises because of the inconclusive results obtained, possibly owing to factors such as are discussed above.

1. Man, E. B., and Peters, J. P.: Artificial Values of Serum Precipitable Iodine, J. Lab. & Clinical Med. **35**: 280, 1950.

2. Meyers, J. H., and Man, E. B.: Artifactual Values of Serum Precipitable Iodine After Clinical Intramuscular Injections of Mercuhydrin, J. Lab. & Clin. Med. **37**: 867, 1951.

ONCOLYTIC ACTION OF EPINEPHRINE

In 1948 it was shown by Lewis [1] and her associates of Wistar Institute, Philadelphia, that, when tissues from sarcoma-immune rats are minced with sarcoma grafts, the only organ that inhibits growth of the graft is the adrenal gland. Subsequent tests with the adrenals of normal rats showed a similar inhibition. The conclusion was drawn that graft inhibition was due to the action of one or more of the normal adrenal hormones. Tests were therefore made of the oncolytic action of epinephrine.[2]

Inbred albino rats and native tumors that were 100% transplantable were used, with four types of procedure: 1. Implantation of minced tissue to which epinephrine had been added. The epinephrine used was in the form of a sterile solution containing 1 mg. of epinephrine per cubic centimeter of isotonic sodium chloride solution, to which 0.1% sodium bisulfate and 0.5% chlorobutanol were added as preservatives. 2. Intratumor injection of epinephrine. 3. Local injection around small tumors growing in susceptible rats. 4. Injections of epinephrine into local subcutaneous tissues two hours to 10 days prior to implantation of the graft. Control tests were made with isotonic sodium chloride solution.

The tests showed that the addition of epinephrine to minced sarcoma tissue inhibits its growth in 52% of the cases. Similar results were obtained from intratumoral or peritumoral injections of epinephrine. The most suggestive results, however, followed injection of epinephrine into subcutaneous tissues prior to implantation of the graft. The grafts failed to grow in 21 of the 34 rats that received grafts two to three hours after local epinephrine injection. The grafts grew in five out of 13 rats after a lapse of three days, in six out of nine rats after a lapse of seven days, and in all rats after a lapse of 10 days. Lewis concluded from these tests that the tumor inhibitory action of epinephrine is due to local damage to vascularization, which is followed by tumor adsorption.

In all rats in which tumors were absorbed or failed to grow, viable grafts were implanted on the opposite side of the body three weeks after the first implantation. Of the 61 rats thus tested, 40 showed effective resistance to growth of the second graft. The initial epinephrine sarcoma injection thus functioned as an effective prophylactic sarcoma vaccine.

1. Lewis, M. R.; Aptekman, P. M., and King, H. D.: Retarding Action of Adrenal Gland on Growth of Sarcoma Grafts in Rats, J. Immunol. **61**: 315, 1949.

2. Lewis, M. R., and Aptekman, P. M.: Inhibitory Action of Adrenalin on Growth of Rat Sarcoma, Science **113**: 557 (May 11) 1951.

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ORGANIZATION SECTION

DR. CLINE ON UNITED DEFENSE FUND AND RED FEATHER CAMPAIGN

"The United Defense Fund fills a great need during this period of mobilization and military activity in Korea. It is sustained by contributions made to the United Red Feather Campaigns. The latter perform essential functions in the normal civilian life of our communities. These worthy projects depend upon money raised during the Fall campaigns. They deserve the wholehearted support of physicians everywhere.

"More and more of our colleagues are being called into the Armed Forces. Our contributions will provide important services for them and at the same time assist us at home by extending the activities of voluntary hospitals, clinics, nursing services and other health agencies for citizens in the lower income groups.

"The medical profession has always advocated extension of medical and health services to these people by voluntary means. Private support will eliminate the hazard of governmental participation and control.

"The U. D. F. Agencies are badly needed to care for the military through the U. S. O., to assist civilians in densely populated defense areas, to establish community projects through the U. C. D. S. and to provide clothing for the Koreans through A. R. K. These are splendid activities of great importance at the present time.

"This year, it is possible for us to subscribe to both the Red Feather home activities and the U. D. F. National Service Programs at one time. Let us get behind the Red Feather Campaign this year and make it a great success. We can render great service to our own communities and our Armed Services by so doing and can avoid the danger of government taking over these activities."

JOHN W. CLINE, M.D., President,
American Medical Association.

MEETINGS OF OFFICIAL BODIES

The Board of Trustees Room, on the ninth floor of the Association's building, will be the meeting place of various official bodies during October and November.

The Public Relations Advisory Committee, composed of executives of state medical associations, which was recently appointed to assist the American Medical Association in handling some of its public relations problems, will have a two day meeting on Oct. 4 and 5.

The Committee on Constitution and By-Laws, established by the House of Delegates, will meet on Oct. 8, for the purpose of carrying out the mandates of the House with respect to proposed amendments to the Constitution and By-Laws for action at the Clinical Session in Los Angeles in December. One of the tasks involved is the provision of a single membership classification.

An important meeting of the Judicial Council will be held on Oct. 9. On Oct. 16 there will be a meeting of the Council on Scientific Assembly and a meeting of the Annual Conference of Section Secretaries with the Council. The Council will consider final arrangements for the Clinical Session in Los Angeles and will make tentative plans for the 1952 Annual Session, to be held in Chicago in June, with particular reference to the program of the General Scientific Meetings on the first two days of the Session. The Conference of Section Secretaries is held in the fall of each year and brings together the secretaries of the sections of the Scientific Assembly in order that ideas and plans for the various section programs may be compared and coordinated with the assistance of the members of the Council.

The Board of Trustees will meet on Oct. 19 and 20. A State Medical Journal Conference, to be attended by the editors and business managers of the journals that are serviced by the State Medical Journal Advertising Bureau, will be held in the Assembly Room adjacent to the Board of Trustees Room on Nov. 12 and 13. This conference will consider among other topics aspects of medical journalism, mechanics of make-up, and cost problems.

The annual meeting of the Committee on Pesticides, a division of the Council on Pharmacy and Chemistry, which studies health problems associated with the use of insecticides, fungicides, rodenticides, herbicides, and other types of economic poisons, will be held about the middle of November.

AWARD OF THE GOLD KEY IN PHYSICAL MEDICINE

At the Annual Meeting of the American Congress of Physical Medicine, held in Denver, Sept. 5, the Gold Key Award of the American Congress of Physical Medicine was awarded to Howard A. Carter, former Secretary of the Council on Physical Medicine and Rehabilitation of the American Medical Association, for "many years of distinguished service" to the field of physical medicine. Mr. Carter is a graduate of mechanical engineering of Illinois Institute of Technology of Chicago. He was instructor in physics at the University of Georgia for four years and instructor in mathematics at Lewis Institute for two years. He is continuing with the Council as Director of Biophysical Investigation.

The Gold Key Award is the highest recognition offered by the congress, an association of physicians specializing in physical medicine and rehabilitation. Three others also received the award: Stafford L. Osborne, Ph.D., Department of Physical Medicine, Northwestern University Medical School, for research in physiology and electrotherapeutics; Winfred Overholser, M.D., George Washington University Medical School, Washington, D. C., for his work in occupational therapy and rehabilitation, and Walter J. Zeiter, M.D., Cleveland Clinic Foundation, for his services as executive director of the Congress of Physical Medicine.

A. M. A. TO SPONSOR TV "CLINIC"

A one-day "clinic" concerned with basic problems in use of television for health education will be sponsored by the Bureau of Health Education of the American Medical Association at the Biltmore Hotel, New York, on Tuesday, Oct. 16, it was announced by Dr. W. W. Bauer, Director of the Bureau.

Representatives of numerous agencies, networks, and organizations concerned with health education are included on the Steering Committee:

The "clinic" is open to anyone interested in this field. There is no registration fee.

Inquiries concerning registration should be made to Marshall-Hester Productions, 521 Fifth Ave., New York City, radio and television consultants and producers for the Bureau.

MEDICAL NEWS

CALIFORNIA

Dr. Tiselius Named Hitchcock Lecturer.—Dr. Arne V. K. Tiselius, Swedish Nobel Laureate, has been named Hitchcock lecturer for the fall semester at the University of California, Berkeley. Professor Tiselius of the University of Upsala, Stockholm, will deliver three semipopular lectures, all open to the public, beginning Sept. 24, on advances in the biochemistry of proteins. Professor Tiselius was awarded the Nobel Prize in chemistry in 1948 for his work on electrophoresis and adsorption analysis, and in particular for his discovery of the complex nature of the serum proteins. The Hitchcock Lectures were established by the late Mr. Charles M. Hitchcock.

CONNECTICUT

Connecticut Trudeau Society.—The New England Tuberculosis Conference will be held at Hartford Oct. 10-11. In conjunction with this meeting, the Connecticut Trudeau Society plans a "Pembine" type meeting at the Hartford Hospital Amphitheatre on the afternoon of Oct. 11. A short business session will be followed by a presentation and discussion of treatment of consecutive cases admitted at the Laurel Heights State Tuberculosis Sanatorium, and Uncas-on-Thames Sanatorium. The moderator will be Dr. Donald S. King. Dinner will follow the meeting. The society extends a cordial invitation to interested physicians to attend.

Hartford Hospital Medical Education Program.—Hartford Hospital is offering a series of weekly medical lectures beginning Oct. 6 and extending through Dec. 29, with the exception of Thanksgiving and Christmas weeks. Lectures to be given at the hospital on Saturday mornings at 11 o'clock are as follows:

Oct. 6, Chester S. Keefer, Boston, Newer Trends in the Use of Antibiotics.
Oct. 13, Warfield T. Longcope, Baltimore, Case Presentation.
Oct. 20, Raymond D. Adams, Boston, Cerebrovascular Accidents.
Oct. 27, Byron F. Smith, New York, Bone Surgery of the Orbit.
Nov. 3, Cyril N. H. Long, New Haven, The Adrenal-Pituitary Axis.
Nov. 10, Siegfried J. Thannhauser, Boston, Problem Case Presentation.
Nov. 17, Levin L. Waters, New Haven, Recent Studies in Experimental Vascular Disease.
Dec. 1, Marvin H. Grody, St. Louis, Sterility: A Community Problem.
Dec. 8, Bradley L. Coley, New York, Controversial Points in the Diagnosis and Treatment of Tumors of Bone.
Dec. 15, Garfield G. Duncan, Philadelphia, Practical Aspects of the Management of Diabetes Mellitus.
Dec. 29, Frederick S. Ellison, Hartford, Anorectal Problems.

DELAWARE

Personal.—Dr. Charles E. Gill, Pittsfield, Mass., has been appointed medical director of the Brandywine and Edgewood sanatoriums of the state department of health. Dr. Gill has been associated with the Massachusetts Department of Public Health since 1932 and until recently had been health officer in Pittsfield since the summer of 1946.

DISTRICT OF COLUMBIA

Paul-Lewis Award in Chemistry.—This is the second consecutive year that a scientist at the National Institute of Arthritis and Metabolic Diseases has been selected for the Paul-Lewis Laboratories Award. This year's award went to Bernard L. Horecker, Ph.D., for his contributions to enzyme chemistry. His recent investigations, dealing with a pathway of oxidation of carbohydrates, have led to an understanding of the mechanism of synthesis in the cell of the pentoses. The Paul-Lewis Award was established to stimulate basic research in enzyme chemistry. It is administered by the American Chemical Society and consists of a gold medal and $1,000. This is the seventh of the annual national awards to be made by the Milwaukee laboratory.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Personals.—Dr. William Henry Sebrell Jr., medical director of the U. S. Public Health Service, has been elected to the board of directors of the National Society for Medical Research.—— Dr. Roland B. Scott, head, department of pediatrics, Howard University School of Medicine, Washington, returned to his university duties July 1. Dr. Scott has completed a year's study while on sabbatical leave at the Institute of Allergy of the Roosevelt Hospital, New York, under the direction of Dr. Robert A. Cooke.——A recent decree signed by the President of the French Republic names Dr. Winfred Overholser a Chevalier in the French National Order of the Legion of Honor in recognition of "services rendered to the progress of medical science in the field of psychiatry and for outstanding contribution to international scientific cooperation." Dr. Overholser is superintendent of St. Elizabeth's Hospital, a past president of the American Psychiatric Association, and was vice-president of the First World Congress of Psychiatry held in Paris in September, 1950.

GEORGIA

Dr. Tager to Head Department.—Dr. Morris Tager came to Emory University School of Medicine, Atlanta, on July 1 as professor and chairman of the department of bacteriology and immunology. Dr. Tager was previously a member of the faculty of Western Reserve University School of Medicine, Cleveland.

Associated Surgical Groups to Meet.—The 1951 annual session of the Associated Surgical Groups of Georgia will be held at the Bon Air Hotel, Augusta, Oct. 18 under the chairmanship of Dr. Peter B. Wright of Augusta. Participating groups include the Georgia Chapter of the American College of Surgeons, the state Urological Association, Society of Obstetrics and Gynecology, Society of Anesthesiologists, and Radiological Society, the surgery department of the Medical College of Georgia, the Veterans Administration Hospital, and the Richmond County Medical Society. The printed program lists the following guest speakers: Drs. Alton Ochsner and John Adriani, New Orleans; Dr. Elmer Hess, Erie, Pa.; Dr. Lenox D. Baker, Durham, N. C.; Dr. Joseph D. Guess, Greenville, S. C.; Dr. Julian Johnson, Philadelphia; Dr. Ralph M. Caulk, Washington, D. C., and Dr. George J. Curry, Flint, Mich. Combined sessions of all groups have been scheduled at 8 a. m. and 7:30 p. m.

ILLINOIS

General Practice Annual Session.—The Illinois Academy of General Practice will hold its annual scientific assembly with lectures devoted to general medicine and surgery, atomic medicine, and civil defense, at the Sheraton Hotel, Chicago, Oct. 14-16. Among the speakers will be Brigadier General Elbert De Coursey, Washington, D. C., who will speak on "Atomic Bomb Effects—Teaching Aids from Armed Forces Institute of Pathology." Round table discussions will complete the afternoon programs on Monday and Tuesday. Guest speakers at the annual banquet Monday evening at 7 o'clock will be Illinois Senator Everett M. Dirksen.

Appointment to Advisory Cancer Board.—A new appointee to the Advisory Board to the Bureau of Cancer Control of the state department of public health is Dr. James M. Christie, surgeon for the Christie Clinic in Champaign. He replaces Dr. James P. Simonds of Chicago. Members reappointed are Dr. Charles L. Leonard, present chairman of the board, who is a surgeon on the staff of St. Anthony's Hospital, Rockford, and director of the cancer clinic in that hospital, and Dr. Edwin F. Hirsch, head of the pathological laboratory of St. Luke's Hospital, Chicago. Terms of the members are for three years. Other members of the advisory board are Drs. James P. Grier, Evanston; Robert E. Bowen, Springfield; Roswell T. Pettit, Ottawa; and Gilbert H. Edwards, Pinckneyville.

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Nutrition Grants.—Grants-in-aid totaling $140,000 for the support of scientific studies in agriculture and human nutrition have been made by Swift and Company. Twenty-nine grants have been approved for 22 universities, colleges, and other research institutions in the United States, and two in Canada, for 1951-52. Previous grants totaling $21,000 have been made at intervals since June, 1950.

Personals.—Dr. Irving F. Stein, senior attending physician in obstetrics at Michael Reese Hospital, will address the Brazilian Sterility Society, meeting from Oct. 14-19 in Rio de Janiero, on the diagnosis and treatment of bilateral polysystic ovaries. Dr. Stein is a past member of the board of directors of the American Conference on Sterility.——Dr. Edward F. Rosenberg, member of the Michael Reese department of medicine, will speak at the University of Louvain in Belgium on Nov. 12 on the occasion of the 25th anniversary of the founding of the Belgium League Against Rheumatism. His subject will be experiences with hormone therapy in rheumatic diseases.

University of Illinois Faculty Promotions.—Promotion of seven members of the faculty of the University of Illinois College of Medicine to the rank of full professor has been announced as follows: Dr. Géza de Takats, clinical associate professor of surgery to clinical professor; Dr. Morton I. Grossman, from associate professor of clinical science to professor; Dr. John E. Kempf, from associate professor of bacteriology to professor; Dr. Adolph Rostenberg Jr., from associate professor of dermatology to professor; Dr. Max S. Sadove, who heads the division of anesthesia, from associate professor of surgery to professor; Dr. Walter H. Theobald, from clinical associate professor of otolaryngology to clinical professor; and Dr. Willard Van Hazel, from clinical associate professor of surgery to clinical professor.

LOUISIANA

Personal.—Dr. William Herbert Harris Sr., professor of pathology emeritus at Tulane University of Louisiana School of Medicine, New Orleans, retired July 1. He had been on the faculty of Tulane for over 40 years.

Axson-Choppin Award.—Dr. Ralph E. King, state senator from Winnsboro, was presented the Axson-Choppin Award at the annual meeting of the Louisiana Association of Public Health Workers held recently in Alexandria. This award, which honors the memory of the first and second state health officers in Louisiana, is presented annually by the association to someone outside the field of public health who has rendered valuable service to the cause of public health in the state.

MARYLAND

Symposium on Drug Addiction.—The Medical and Chirurgical Faculty of Maryland and the Baltimore City Bar Association has arranged this symposium to be held Oct. 13 at 9:30 a. m. at the faculty headquarters in Baltimore. Every member is urged to attend. The following will participate in the panel discussion: Judge Joseph Sherbow; Mr. Anselm Sodaro, state's attorney of Baltimore; Mr. Roszel C. Thomsen, member of the bar and president of the Baltimore city school board; and Dr. Earl H. Dearborn of the department of pharmacology of the Johns Hopkins University, Baltimore. It is hoped that Dr. Victor H. Vogel, medical officer in charge of the United States Public Health Service Hospital at Lexington, Ky., will also participate.

MASSACHUSETTS

Cutter Lecture on Preventive Medicine.—The Harvard School of Public Health announces that Dr. Dugald Baird, Regius Professor of Midwifery at the University of Aberdeen, Scotland, will deliver the Cutter Lecture on Preventive Medicine on Oct. 15 at 5 p. m. in Amphitheatre D of the Harvard Medical School, Boston, on "Preventive Medicine in Obstetrics." The lectures have been held since 1912. The medical profession, medical and public health students, and others interested are cordially invited to attend.

New Adolescent Unit.—The Children's Medical Center, Boston, has taken its first step in the development of facilities for the care of adolescents. For years the staff has recognized the need of organizing special medical service for adolescents. Hospital care, and outpatient and consultation service on all types of illness of this age group will be provided. The unit will give particular attention to conditions and problems which are most troublesome in the adolescent years: contagious diseases, athletic injuries, psychological problems, growth and glandular disturbances, and reading and scholastic difficulties. Dr. J. Roswell Gallagher, director of the adolescent unit, for 20 years has devoted his attention exclusively to this age group. He has been successively physician at the Hill School in Pottstown, Pa., Phillips Academy in Andover, and Wesleyan University in Middletown, Conn. In 1948 he was appointed consultant in medicine to the staff of the Children's Medical Center. He is assistant professor of child health in the Harvard School of Public Health and will participate in the teaching of physicians and other medical workers in research on the health problems of adolescence.

MICHIGAN

Faculty Promotions.—Faculty promotions at the University of Michigan Medical School, Ann Arbor, effective with the start of the fall semester, are as follows: Promoted to the rank of professor are Charles Roosevelt Brassfield, Ph.D., (physiology); Henry Charles Eckstein, Ph.D., (biological chemistry); Dr. Moses Michael Frolich (psychiatry); and Dr. Herman M. Pollard (internal medicine). Promoted to associate professors are Dr. Robert S. MacIntyre (roentgenology); Drs. Otto T. Mallery Jr., and James VanGundia Neel (internal medicine); and Drs. Ralph D. Rabinovitch and Herbert T. Schmale (psychiatry). Title of assistant professor was given to Dr. William C. Baum (surgery); Ernest E. Evans and Donald Joseph Merchant (bacteriology); Drs. Stefan S. Fajans, Kenneth P. Mathews, Henry Kramer Schoch Jr., and Arnold Wollum (internal medicine); and Dr. Bruce D. Graham and Dr. George H. Lowrey (pediatrics and communicable diseases). In the School of Public Health, full professorships were awarded Carl E. Buck and Dr. John J. Hanlon (public health practice).

MINNESOTA

Postgraduate Medical Seminars.—An enlarged program of medical seminars conducted for practicing physicians by the University of Minnesota Medical School, began Sept. 12 and 13 in 10 key cities throughout the state: Worthington, Austin, Rochester, Faribault, Mankato, Glencoe, Willmar, St. Cloud, Alexandria, and Hibbing. The meetings are planned each year by the university medical school's department of postgraduate education, and are presented in cooperation with the state medical association. Each seminar covers points of current interest in different fields of medicine. Emphasis is on practical methods of diagnosing and managing the more common diseases. Eight weeks long, the seminars will run on Wednesday evenings from Sept. 12 to Oct. 31 in six of the cities, and on Thursday nights from Sept. 13 to Nov. 1 in the other four communities. Clinical and full-time members of the medical faculty are instructors.

Construction to Begin on Mayo Memorial.—Contracts totaling $9,678,770 have been awarded for construction of the Mayo Memorial Medical Center on the University of Minnesota campus in Minneapolis. Originally planned as a 22-story structure, the project was pared down to 14 stories when the 1951 legislature declined to appropriate additional funds for the larger center. Construction will get underway as soon as final approval is secured from the United States Public Health Service. Foundations are already completed. The new contracts cover completion of the entire project, except for the 14th floor, which will be enclosed with option to finish later. Funds for the Mayo Memorial Medical Center were provided by appropriations of the 1945, 1947, and 1949 legislature totalling $7,000,000; by grants from the National Cancer Institute; National Heart Institute; and by private gifts. Two million dollars came from the U. S. Public Health Service from funds provided by the Hill-Burton Act. The center will be a memorial to the late Drs. William J. Mayo and Charles H. Mayo of Rochester. The brothers died in 1939.

MISSOURI

University Appointment.—Dr. Frederick G. Germuth Jr., has been appointed assistant professor of pathology at Washington University School of Medicine, St. Louis. Chief of the department of immunology at the National Institute of Health, Bethesda, Md., since 1948, Dr. Germuth was formerly in the laboratory of experimental therapeutics at Johns Hopkins University School of Medicine, Baltimore, from which he received his medical degree in 1945.

Institute on Child Development.—The second annual Institute on Child Development, featuring speakers from the fields of medicine, psychology, and education, and titled "Know Your Child," will be offered beginning Oct. 9 by the St. Louis University Adult Education Center under the sponsorship of the university's Speech Clinic. The institute is designed to outline the important points in the physical, mental, emotional, and social development of the child, and is directed primarily at parents and young married or engaged couples. Lectures, all by members of the university faculty, include the following:

Oct. 9, Peter G. Danis, Your Child's Growth.
Oct. 16, Walter L. Wilkins, Ph.D., Your Child's Emotions.
Oct. 23, Kenneth C. Marshall, D.D.S., Your Child's Teeth.
Oct. 30, Fullerton W. Luedde, Your Child's Vision.
Nov. 6, Mrs. Mary Lou Rush, Your Child's Speech.
Nov. 13, Miss Diane Foster, Your Child's Play.
Nov. 20, Miss Katherine Clarke, Literature for Young Children.
Nov. 27, Rev. Robert A. Johnston, S.J., Religious Training for the Young Child.

Registrations will be taken up to the opening of the first session, and may be made by mail or in person at the Adult Education Center, 3673 West Pine St., St. Louis.

NEW JERSEY

Foundation for Microbiology.—The establishment of this foundation was announced Aug. 17 by Selman A. Waksman, Ph.D., director of Rutgers University Institute of Microbiology, New Brunswick, to encourage with financial aid the study of microbiology in all parts of the free world. Dr. Waksman, co-discoverer of streptomycin, has transferred to the new foundation half of his remaining royalty rights of 10% in streptomycin, neomycin, and other antibiotics. The 5% royalties are expected to yield $40,000 a year to the foundation. Unchanged are the 82½% royalty right that goes to Rutgers Research and Endowment Foundation and the 7½% being distributed to the other scientists, former students of Dr. Waksman, who participated in the discovery and development of streptomycin. The foundation's interests will range from the establishment and support of professorships and fellowships to the granting of funds to finance publication of technical papers and books. The foundation also will sponsor scientific meetings and conventions and help in the development of microbiological discoveries and processes for practical use. Trustees of the new foundation besides Dr. Waksman are Dr. Harry Eagle of Chevy Chase, Md., head of the National Institute of Health's section on experimental chemotherapy, and Dr. Rene J. Dubos, New York, a member of the Rockefeller Institute for Medical Research. The incorporators, in addition to the three trustees, are A. Dudley Watson, Highland Park attorney, and Van Wie Ingham of North Brunswick, assistant to Dean William H. Martin of the College of Agriculture at Rutgers.

NEW YORK

Dr. Bishop Heads Biochemistry Department.—Charles W. Bishop, Ph.D., has been appointed head of the department of biochemistry and assistant laboratory director of the Chronic Disease Research Institute of the University of Buffalo. He came to the University of Buffalo Medical School in 1947 as assistant professor in biochemistry.

New Department of Physical Medicine.—The University of Buffalo has established a department of physical medicine and rehabilitation at its Chronic Disease Research Institute. Dr. Henry V. Morelewicz, department chief, will head a program of research, education, and training. Dr. Morelewicz also has been appointed chief of physical medicine and rehabilitation at Mercy Hospital.

Dr. Arthur E. MacNeill, research associate in the physiological sciences at Dartmouth Medical School, Hanover, N. H., has been designated chief of laboratories at the institute. A former flight surgeon in the U. S. Army Air Corps and medical research consultant to the U. S. Department of State, Dr. MacNeill will have administrative supervision over all the laboratories, but will devote the major portion of his time to experimental research in the use of mechanical devices as aids in medical treatment.

New York City

Dr. Hetrick Honored.—Dr. J. A. Werner Hetrick, dean of New York Medical College and president of Flower and Fifth Avenue Hospitals, was honored at a testimonial dinner Sept. 22 at the Waldorf-Astoria Hotel, attended by statesmen, educators, physicians, and business leaders. Tribute was paid to his 10 years of service as dean, during which period the institution has grown into one of the leading medical centers in the country. Dr. Frank J. Borrelli, head of the college department of radiology and chairman of the committee sponsoring the dinner, presented a bronze plaque to Dr. Hetrick inscribed with a testimonial of appreciation for his 25 years of service to the institution.

Study of Accidents Among Childen.—With accidents now constituting the leading cause of death in this country among children from 1 to 19 years of age, a fresh approach to the problem is to be made this fall through a year's pilot study at the Babies Hospital of the Columbia-Presbyterian Medical Center, supported by a grant from the Metropolitan Life Insurance Company. Following the first meeting Sept. 21 of the committee and staff directing this study, it was emphasized that child accidents present a major and alarming public health problem. At ages 1 to 4 years, accidents kill twice as many children as measles, scarlet fever, whooping cough, diphtheria, dysentery, tuberculosis, and poliomyelitis combined. Since 15% to 20% of the children have 80% to 90% of the home accidents, the study will include a thorough analysis of the history and current status of a number of child accident repeaters and their families in comparison with a control group relatively free of the accident habit. It is hoped that this study will produce information that can be translated into practical guidance procedures. The study will be under the guidance of an advisory committee composed of leaders in the fields of education, psychiatry, epidemiology, pediatrics, accident prevention, and research methods, including representatives of the Columbia-Presbyterian Medical Center and of the Metropolitan Life Insurance Company. Dr. Rustin McIntosh is serving as chairman of this committee; the director of the study is Dr. William S. Langford, head of the Pediatric Psychiatric Clinic at Babies Hospital.

OREGON

State Medical Meeting.—The Oregon State Medical Society will hold its annual session Oct. 10-12 at the Masonic Temple, Portland, under the presidency of Dr. William J. Weese of Ontario. Dr. John W. Cline, San Francisco, President of the American Medical Association, will address the evening session Thursday on common lesions of the breast. Other guest speakers are those selected for the Sommer Memorial Lectures, which, for the first time since their inauguration in 1941, are being given during the session of the state medical society. The lectures are as follows:

Oct. 10, 10 a. m., Charles A. Janeway, Boston, Preventive Pediatrics—Midcentury Version.
1 p. m., Charles A. Janeway, The Nephrotic Syndrome: An Important Chronic Disease Problem in Children.
8 p. m., Frederic H. Bentley, Newcastle upon Tyne, England, Gastric Pain.
Oct. 11, 9:10 a. m., Charles A. Janeway, Blood and Blood Derivatives.
1 p. m., Frederic H. Bentley, Clinical Aspects of the Blood Supply of the Stomach.
4:10 p. m., Frederic H. Bentley, Gastric Surgery.
8 p. m., Virgil S. Counseller, Rochester, Minn., Urinary Incontinence: Etiology and Treatment.
Oct. 12, 9:10 a. m., Virgil S. Counseller, Vaginal Hysterectomy: Indications, Advantages, and Surgical Technic.
1 p. m., Virgil S. Counseller, Vesical Fistulas: Etiology and Treatment.

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There will be four panel discussions during the meeting: the first on Wednesday afternoon on care of the premature, with Dr. S. Gorham Babson of Portland as moderator; the second on Thursday afternoon on shock and its aftermath, with Dr. William K. Livingston, Portland, serving as moderator; the third Friday afternoon on essentials of prenatal care, with Dr. Clifford L. Fearl, Portland, moderator, and the last Saturday morning on infectious diseases and the proper use of antibiotics, Dr. Arthur W. Frisch, Portland, moderator. The annual banquet will be held Friday at 7 p. m., when Dr. Cline will speak on problems confronting medicine in the immediate future.

PENNSYLVANIA

Graduate Education Institute Begins.—The fifth annual program of the Graduate Education Institute, sponsored by the Medical Society of the State of Pennsylvania, opened in 10 teaching centers throughout the state the first week in October with an estimated 900 general practitioners enrolled. Centers are located in Allentown, Clearfield, Harrisburg, Johnstown, Lancaster, Butler, Reading, Washington, Scranton, and Williamsport. A faculty of 180 instructors from the medical schools in Philadelphia and Pittsburgh has been engaged to present a variety of medical subjects. Lectures will be conducted one day a week for five weeks in each center and will continue for five weeks in the spring. Dr. Charles W. Smith, Harrisburg, is chairman of the Commission on Graduate Education of the state society. Subjects to be presented this fall include allergy, heart disease, neurology, obstetrics, endocrine disorders, physical medicine and rehabilitation, and bone and joint diseases.

TENNESSEE

Portrait of Dr. Schmeisser.—A portrait of Dr. Harry Christian Schmeisser, a gift of his wife, was presented to the University of Tennessee Medical Units Sept. 15 at the new Institute of Pathology in Memphis. The portrait commemorates Dr. Schmeisser's 30 years of service as professor of pathology and bacteriology and director of the old Institute of Pathology from Sept. 1921 to March 1, 1944, and professor of pathology from that date. Thomas P. Nash Jr., Ph.D., dean of the school of biological sciences, presided at the ceremony. The presentation address was delivered by Dr. Ernest W. Goodpasture, professor of pathology and former dean of Vanderbilt University School of Medicine, Nashville.

VIRGINIA

New State Health Commissioner.—Dr. Mack I. Shanholtz, Wewoka, Okla., has been appointed state health commissioner to succeed Dr. Lonsdale J. Roper. Dr. Adrian L. Carson Jr. has been designated to fill the vacancy created by the resignation of Dr. John C. Neale Jr., to serve as interim director of the division of local health services until a permanent appointment can be made.

Conferences for General Practitioners.—A series of conferences designed especially for general practitioners will be held at the University of Virginia Department of Medicine, Charlottesville, during the academic year, 1951-1952. Obstetrics and gynecology in general practice will be the subject of the first conference, Oct. 19-20. A conference on the management of common traumatic injuries, will be held Jan. 11, 1952, and a conference on infectious diseases April 4, 1952.

WISCONSIN

Postgraduate Course in Cardiology.—The University of Wisconsin Medical School, Madison, will present a postgraduate course in cardiology Oct. 23-25, under the direction of Dr. Herman H. Shapiro, associate professor of clinical medicine and chairman of the cardiology section. The morning sessions consist of ward rounds and instruction in the interpretation of electrocardiograms and orthodiagrams in small groups under direct supervision. The afternoon sessions, lecture-type presentations, will be held in Building T-14. Registration, limited to 20, must be made in advance with Dr. Robert C. Parkin, 418 N. Randall Ave., Madison 6. The fee for the course is $10, payable on Oct. 23.

GENERAL

Ambulatory Fracture Association Meeting in California.—This association will hold its annual meeting Oct. 8-11 at the Arrowhead Springs Hotel in San Bernardino, Calif., under the presidency of Dr. Roger A. Vargas of San Bernardino. A series of 36 papers will be presented at the scientific sessions. A fellowship dinner will be held Monday at 7 p. m. and the annual banquet Thursday at 8 p. m.

Southwestern Medical Association Meeting.—The annual meeting of this association is being held in the Cortez Hotel, El Paso, Texas, Oct. 18-20 under the presidency of Dr. Louis W. Breck of El Paso. Speakers include the following:

Edgar Burns, New Orleans, Urologic Problems in Children.
Edward H. Reinhard, St. Louis, Radioactive Isotopes in the Diagnosis and Treatment of Malignant Neoplastic Diseases.
Elmer C. Bartels, Boston, Present-day Treatment of Hyperthyroidism.
Herbert E. Schmitz, Chicago, Total Abdominal versus Vaginal Hysterectomy.
Edwin H. Ellison, Columbus, Ohio, Modern Treatment of Burns.
Elexious T. Bell, Minneapolis, Pathology of Glomerulonephritis.

International Medical Assembly.—This assembly, a postgraduate school of the Interstate Postgraduate Medical Association of North America, will meet in the Public Auditorium in St. Louis Oct. 22-25 under the presidency of Dr. Richard B. Cattell, Boston. Diagnostic clinics will be held in the morning and early afternoon and will be followed by addresses beginning at 4 p. m. Scientific papers will be presented during evening sessions also beginning at 7:30 Monday, Tuesday, and Thursday. The assembly dinner will be held at the Hotel Jefferson Wednesday evening. Both technical and commercial exhibits will be shown. The registration fee is $5, except for doctors in uniform, for whom it is $1. A program has been arranged for the doctors' wives.

Van Meter Prize Award.—The American Goiter Association again offers the Van Meter Prize Award of $300 and two honorable mentions for the best essays submitted describing original work on problems related to the thyroid gland. The award will be made at the annual meeting of the association in St. Louis May 1-3, 1952, provided essays of sufficient merit are presented in competition. The competing essays may cover either clinical or research investigations; should not exceed three thousand words in length; must be presented in English, and a typewritten double spaced copy in duplicate sent to the Corresponding Secretary, Dr. George C. Shivers, 100 E. Saint Vrain St., Colorado Springs, Colo., not later than March 1, 1952. The winning essay will be published in the annual proceedings of the association.

Meeting on Surgery of Trauma.—The American Association for the Surgery of Trauma will hold its annual session Oct. 23-25 at the Seigniory Club, Montreal, Canada, under the presidency of Dr. R. Arnold Griswold, Louisville. Among the 38 papers will be six in a symposium on vascular problems to be presented on Wednesday with Dr. Louis G. Hermann, Cincinnati, serving as moderator. The symposium will close with a round table discussion on vascular injuries and vascular surgery, the participants being Drs. Campbell M. Gardner, Montreal, Canada; Joseph E. Hamilton, Louisville; Gordon Murray, Toronto, Canada; Sam F. Seeley, Washington, D. C., and John E. Webster, Detroit. The annual dinner will be held on Wednesday at 8 p. m. Lionel A. Forsyth, president of the Dominion Steel and Coal Corporation of Canada, will be the guest speaker.

Study of Air Pollution.—An international study of air pollution is being made in the Detroit, Mich.-Windsor, Ontario, Canada, area at the request of the governments of Canada and the United States. The Public Health Service, the Weather Bureau, the state of Michigan and the city of Detroit, and a number of large industries in the region are participating in the study on the United States side. The International Joint Commission has established a Technical Advisory Board on Air Pollution to direct field work and plan studies on both sides of the boundary, to review the findings, and to make recommendations to the commission. The chairman of the United States section of the Technical Advisory Board is Mr. George D. Clayton of the Public Health Service; the chairman of the Canadian section of the board, Dr. Morris Katz of the Canadian Department of

National Defense, Ottawa. The long range objectives of the study are the determination of sources, nature, and amounts of atmospheric contaminants resulting from combustion of fuels; sources, nature, and amounts of atmospheric contaminants resulting from industrial processes; effects of local meteorological factors on the dissemination and diffusion of atmospheric contaminants; the effect of the atmospheric contaminants on health, vegetation, safety, and economy, and controls necessary and their cost.

Blood Bank Association Meeting.—The annual meeting of the American Association of Blood Banks will be held at the Hotel Nicollet in Minneapolis, Oct. 22-24 under the presidency of Dr. Paul I. Hoxworth, Cincinnati. Papers will be given on Administrative Aspects in Blood Banking, Research in Blood, Practical Aspects of Blood Banking, and National Needs for Blood. Panel discussions will be given at each morning and afternoon session as follows:

Administrative Aspects of Blood, James M. Potts, Dallas, Texas, moderator; Mr. William S. Kyler, Aurora, Ill., Miss Marjorie Saunders, LL.B., Dallas, Texas, and Marion Rymer, Ph.D., Denver.

Blood Preservation, Kenneth M. Endicott, Bethesda, Md., moderator; Max M. Strumia, Bryn Mawr, Pa., John G. Gibson, Boston, Orville F. Denstedt, Ph.D., Montreal, Canada.

Erythroblastosis Fetalis, Tibor J. Greenwalt, Milwaukee, moderator; Milton S. Sacks, Baltimore, Louis K. Diamond, Boston, Ernest Witebsky, Buffalo.

Technics in Blood Banking, Thomas H. Seldon, Rochester, Minn., moderator; Malcolm M. Hargraves, Don R. Mathieson and John E. Osborn, Rochester, Minn., Coye C. Mason, Aurora, Ill.

National Need for Blood, Capt. Lloyd R. Newhouser, MC, USN, Washington, D. C., moderator; John B. Alsever, Washington, D. C., William G. Workman, Bethesda, Md., Douglas Kendrick, Rochester, Minn., and Russell L. Haden, Crozet, Va.

The annual banquet will be held at 7 p. m. Tuesday. Both scientific and technical exhibits will be on display.

WHO to Purchase DDT for Member States.—The World Health Organization has notified interested governments that it is ready to purchase DDT insecticide on their behalf from the priority reservation set aside by the United States for health and agricultural purposes abroad. Dr. Brock Chisholm, director-general, announced that WHO had obtained general export licenses from the United States covering a large group of commodities, including insecticides, for other member governments. Under these general export licenses, priority assistance for DDT exports from the United States may be obtained immediately on application by WHO and the Pan American Sanitary Bureau, the regional office of WHO in the Americas. The United States will grant priority only to orders placed for delivery during the third and fourth quarters of the year, at a time when its agricultural requirements are lowest. Priority assistance will be given during the first and second quarters of the calender year (January through June) only in cases of clear emergency. Member governments are encouraged to obtain their requirements in the United States market for shipment before the end of the year in order to obtain the best prices and "avoid conflict with U. S. domestic requirements." Dr. Chisholm's letter also states the United States National Production Authority has agreed "that it is in the interests of world health, in which the United States is vitally interested, that continuity of public health programs against malaria and yellow fever be maintained."

Teaching Mission Goes to Israel and Iran.—A medical teaching mission composed of 14 specialists from six different countries has left from Geneva for Israel and Iran, the World Health Organization has announced. The mission is being carried out at the request of the ministries of health of the two countries to be visited. It includes a public health unit which will remain in Israel for two months; clinical and preclinical specialists will go to Iran for three weeks after spending a month in Israel.

The mission, which is under the chairmanship of Dr. Leo M. Davidoff, professor of neurosurgery of New York University, is a joint project of WHO and the Unitarian Service Committee. Both organizations have sponsored similar projects in the past, including missions to Columbia, Finland, Germany, Greece, Japan, Poland, and the Philippines, but this is the first one to go to the Eastern Mediterranean region and also the first of such size and scope. In addition to the public health unit, which is under the direction of Dr. Karl Evang, surgeon general of public health of Norway, it includes specialists in physiology, biochemistry, pathology, pediatrics, surgery, radiology, anesthesiology, preventive medicine, and sanitary engineering.

Members of the mission are: Dr. Gordon Kenneth Moe, Syracuse, N. Y.; Dr. Hugo Theorell, Stockholm, Sweden; Dr. Paul Klemperer, New York; Dr. Erik Warburg, Copenhagen, Denmark; Dr. Samuel Z. Levine, New York; Dr. Carl Semb, Oslo, Norway; Dr. Leo M. Davidoff, New York; Dr. H. Osmond-Clarke, London; Dr. Leo G. Rigler, Minneapolis; Dr. Lucien E. Morris, Iowa City; Dr. Edward Grzegorzewski, Geneva, Switzerland; Dr. Karl Evang, Oslo, Norway; Dr. John E. Gordon, Boston, and Prof. Richard G. Tyler, Seattle.

Marriage Rates and World War II.—The soaring marriage rates which followed World War II throughout much of the world have now declined to approximately prewar levels, according to the Metropolitan Life Insurance Company's statisticians. In reporting on the extent to which World War II has influenced marriage rates during the past decade, the statisticians note that the changes varied from country to country, with the most pronounced effects felt in the occupied nations and in those belligerents actively engaged in hostilities. In the neutrals, on the other hand, there was relatively little change. From 1939 to 1942 the English-speaking nations experienced a high point in the number of marriages, which was followed by a decline for two or three years. Termination of the conflict, however, brought a new high, the peak occurring in 1945 in the British Isles, and the following year in the United States, Canada, Australia, and New Zealand. In this country the rate of 16.2 marriages per 1,000 population attained in 1946 was not only the highest in nation's history, but also higher than that of any other country in the postwar period. The rate of marriages fell off greatly in the occupied countries of Europe during the later years of the war. In some, as Belgium, France, Italy, Luxembourg, and Romania, it was continually below the prewar level, with 5 marriages per 1,000 population not uncommon. However, in almost every case, the end of the struggle brought a sharp upturn, and in some instances, especially France, the number of marriages remains much higher today than in the prewar period. It is likely that the decline in marriage rates will continue during the next few years, according to the statisticians, because we are entering the period in which effects of the low birth rate during the depression years will be shown in fewer people attaining marriageable age.

International Tuberculosis Campaign.—Since the end of World War II the International Tuberculosis Campaign has directed and coordinated in 23 countries the tuberculin testing of 36 million children and adolescents, and the vaccination of 16 million of that number with BCG (Bacillus Calmette Guérin). Further plans are now in progress for the continuation of the campaign in the participating countries and for its extension to other lands and peoples. Started at the close of the war by the Danish Red Cross Society, which introduced mass BCG vaccination in several European countries as an emergency measure against tuberculosis, the campaign was carried out until July 1 through the united effort and support of the Scandinavian voluntary societies and the United Nations International Children's Emergency Fund with the cooperation of the World Health Organization. It is being continued by UNICEF and WHO, which established in February, 1949, a Tuberculosis Research Office in Copenhagen, Denmark, to evaluate the results of the campaign. The Tuberculosis Research Office has cooperated with certain countries in a long-range evaluation program. Punch card copies of all vaccination records including both the tested and the vaccinated are made to form a national register which would permit direct matching of current tuberculosis morbidity and mortality among the vaccinated group as against those occurring among the natural reactors to tuberculin, or the expected trends in the general population based on prevaccination experiences. Denmark and Finland have begun evaluation studies.

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Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States in the weeks ended as indicated:

Area	Sept. 22, 1951	Sept. 15, 1951	Sept. 23, 1950
New England States			
Maine	2	5	6
New Hampshire	4	4	..
Vermont	2	..	6
Massachusetts	9	26	48
Rhode Island	1	1	7
Connecticut	14	18	32
Middle Atlantic States			
New York	121	132	336
New Jersey	41	51	65
Pennsylvania	64	54	116
East North Central States			
Ohio	89	80	143
Indiana	31	25	42
Illinois	116	132	132
Michigan	99	110	139
Wisconsin	151	100	77
West North Central States			
Minnesota	41	47	40
Iowa	34	21	137
Missouri	55	79	37
North Dakota	5	9	2
South Dakota	7	14	16
Nebraska	38	38	30
Kansas	58	57	28
South Atlantic States			
Delaware	..	..	4
Maryland	4	11	71
District of Columbia	1	3	16
Virginia	20	14	75
West Virginia	9	10	31
North Carolina	11	18	58
South Carolina	4	17	17
Georgia	24	29	29
Florida	4	10	17
East South Central States			
Kentucky	12	21	40
Tennessee	59	34	27
Alabama	24	29	7
Mississippi	59	26	22
West South Central States			
Arkansas	24	25	21
Louisiana	47	52	21
Oklahoma	33	34	16
Texas	73	87	74
Mountain States			
Montana	28	11	3
Idaho	6	6	7
Wyoming	9	26	..
Colorado	41	67	5
New Mexico	8	6	3
Arizona	14	11	7
Utah	26	49	6
Nevada	5	4	..
Pacific States			
Washington	30	22	33
Oregon	17	14	40
California	172	158	85
Territories and Possessions			
Alaska	5	..	3
Hawaii	..	1	1
United States	1,751	1,798	2,173

Note.—Iowa reported 22 delayed September cases—not allocated to specific weeks.

Additions for week ending Sept. 15: Virginia, 17 cases, delayed report—not allocated to specific weeks. Nevada, 2 cases for week ended Sept. 8.

FOREIGN

Plague Epidemic Fading in Yemen.—A preliminary survey of over 60 villages in the Saada region of Khawlan, a province of Yemen on the Saudi Arabian border, has revealed only 12 cases of bubonic plague and one of pneumonic plague. The report came from Dr. Hafez Amin Bey, World Health Organization medical consultant, who was sent to investigate a reported epidemic of plague on the request of the government of Yemen. In the opinion of Dr. Amin, the epidemic, which began around March 1, is now fading. It had stopped in some villages even before the arrival of the WHO team. There were no traces of it in Yemenite ports, and authorities reported that all rats caught in Aden on Yemenite ships were completely free from the disease. As a result of his investigations, Dr. Amin, in consultation with the government health authorities at Aden, has worked out a plan for surveillance of the infected area and full reporting of new cases. He will continue his own work in the field, as well as analyzing and coordinating the reports of teams in the mountains.

LATIN AMERICA

Yellow Fever Outbreak in Costa Rica.—Dr. Fred L. Soper, director of the Pan American Sanitary Bureau, Regional Office of the World Health Organization, Washington, D. C., went to Costa Rica in mid-September to consult with public health officials regarding the outbreak of yellow fever in jungle areas of that Central American republic. The Costa Rican Government by mid-September had reported 25 cases confirmed by laboratory analysis, and 24 deaths since the outbreak occurred three months previously. The cases are located in jungle areas of three provinces, Alajuela, Heredia, and Limon. Up to Sept. 6 Costa Rican public health authorities had vaccinated some 50,000 persons in the infected and adjacent districts. According to official reports, the urban vector of yellow fever, the Aedes aegypti mosquito, is no longer found anywhere in the republic. It is transmitted, however, in jungle areas. It has been found impossible to eliminate yellow fever from such jungle areas, particularly because monkeys are also infected; vaccination is the only adequate control measure. The present outbreak indicates the presence of the virus in the jungle areas of this hemisphere. Cases were reported in Panama some months prior to the current outbreak in Costa Rica, just south of the border of the latter republic. At that time the Costa Rican government initiated its present vaccination campaign with the assistance of the PASB. The presence of the virus in certain jungle spots of southeastern Mexico (State of Chiapas) recently has been detected through laboratory studies of monkeys' blood serum.

The current outbreak emphasizes the need for continuing without interruption the continent-wide program for the complete eradication of the Aedes aegypti, which still occurs in certain urban areas as far north as the southern part of the United States. This program, approved by the Pan American Sanitary Organization, is being carried on by the Latin American governments, with the assistance of PASB and other international organizations, in order to prevent the spread of the disease to cities, towns, and rural communities, where it might assume epidemic proportions.

CORRECTION

Orthopedics and Industry.—In the Correspondence section of THE JOURNAL, Sept. 15, page 275, the following material should be substituted for the first four lines of the next to the last paragraph of the letter by Dr. M. H. Manson:

"The booklet referred to in Dr. Billig's recent article was a brochure entitled 'Thirty Days Hath September,' which deals specifically with menstruation. In June, 1945, at a Bell System Medical Directors' Conference, the contents of this brochure were discussed, also the then existing reports on the Billig exercises."

MEETINGS

AMERICAN MEDICAL ASSOCIATION CLINICAL SESSION, Los Angeles, Dec. 4-7. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

AMBULATORY FRACTURE ASSOCIATION, Arrowhead Springs Hotel, San Bernardino, Calif., Oct. 8-11. Dr. H. W. Wellmerling, 626 Griesheim Bldg., Bloomington, Ill., Secretary.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, Chicago, Oct. 14-18. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

AMERICAN ACADEMY OF PEDIATRICS, Toronto, Canada, Oct. 20-25. Dr. E. H. Christopherson, 636 Church St., Evanston, Ill., Executive Secretary.

AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA, The Seigniory, Montebello, Quebec, Canada, Oct. 23-25. Dr. Charles G. Johnston, 1512 St. Antoine St., Detroit 26, Secretary.

AMERICAN ASSOCIATION OF BLOOD BANKS, Hotel Nicollet, Minneapolis, Oct. 22-24. Miss Marjorie Saunders, 3301 Junius St., Dallas 1, Texas, Secretary.

AMERICAN CANCER SOCIETY, New York, Oct. 25. Dr. Charles S. Cameron, 47 Beaver St., New York, Medical Director.

AMERICAN CLINICAL AND CLIMATOLOGICAL ASSOCIATION, Skytop, Pa., Nov. 5-7. Dr. Marshall N. Fulton, 124 Waterman St., Providence, R. I., Secretary.

AMERICAN COLLEGE OF SURGEONS, Fairmont Hotel, San Francisco, Nov. 5-9. Dr. Michael L. Mason, 40 E. Erie St., Chicago 11, Secretary.

AMERICAN PUBLIC HEALTH ASSOCIATION, Civic Auditorium, San Francisco, Oct. 29-Nov. 2. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

AMERICAN SOCIETY FOR THE STUDY OF ARTERIOSCLEROSIS, Chicago, Nov. 4-5. Dr. O. J. Pollak, Quincy City Hospital, Quincy 69, Mass., Secretary.

AMERICAN SOCIETY OF ANESTHESIOLOGISTS, Washington, D. C., Nov. 5-8. Dr. J. Earl Remlinger Jr., 188 W. Randolph St., Room 909, Chicago 1, Secretary.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, Chicago, Oct. 15-20. Dr. Clyde G. Culbertson, 1040 W. Michigan St., Indianapolis 7, Secretary.

AMERICAN SOCIETY OF TROPICAL MEDICINE, Congress Hotel, Chicago, Nov. 15-17. Dr. Quentin M. Geiman, 25 Shattuck St., Boston 15, Secretary.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, French Lick Springs Hotel, French Lick, Ind., Oct. 29-31. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

ASSOCIATION OF LIFE INSURANCE MEDICAL DIRECTORS OF AMERICA, New York, Oct. 11-12. Dr. Henry B. Kirkland, P. O. Box 594, Newark 1, N. J., Secretary.

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES, Palmer House, Chicago, Oct. 8-10. Colonel James M. Phalen, Armed Forces Institute of Pathology, Washington 25, D. C., Secretary.

ASSOCIATION OF STATE AND TERRITORIAL HEALTH OFFICERS, Washington, D. C., Nov. 26-30. Dr. John D. Porterfield, 306 Ohio Depts. Bldg., Columbus 15, Ohio, Secretary.

CENTRAL NEUROPSYCHIATRIC ASSOCIATION, Hotel Nicollet, Minneapolis, Oct. 19-20. Dr. Lee M. Eaton, 102 Second Ave. S.W., Rochester, Minn., Secretary.

CENTRAL SOCIETY FOR CLINICAL RESEARCH, Drake Hotel, Chicago, Nov. 2-3. Dr. Kenneth G. Kohlstaedt, 960 Locke St., Indianapolis 7, Secretary.

COLLEGE OF AMERICAN PATHOLOGISTS, Chicago, Oct. 15-16. Dr. Tracy B. Mallory, Massachusetts General Hospital, Boston, Secretary.

DELAWARE, MEDICAL SOCIETY OF, Wilmington, Oct. 8-10. Dr. Andrew H. Gehret, 1007 Park Place, Wilmington, Secretary.

GULF COAST CLINICAL SOCIETY, Edgewater Gulf Hotel, Edgewater Park, Miss., Oct. 18-19. Dr. C. D. Taylor, 113 Davis Ave., Pass Christian, Miss., Secretary.

INDIANA STATE MEDICAL ASSOCIATION, Indianapolis, Oct. 29-31. Miss Lucille Kribs, 23 E. Ohio St., Indianapolis 4, Acting Secretary.

INTERSTATE POST GRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA, St. Louis, Oct. 22-26. Dr. Tom B. Throckmorton, Equitable Bldg., Des Moines, Iowa, Secretary.

MIDWEST REGIONAL MEETING AMERICAN COLLEGE OF PHYSICIANS, Columbus, Ohio, Oct. 13. Dr. B. K. Wiseman, Kinsman Hall, Ohio State University, Columbus 10, Ohio, Chairman.

NATIONAL ASSOCIATION OF CLINIC MANAGERS, Buena Vista Hotel, Biloxi, Miss., Oct. 29-31. Mr. Floyd R. Detert, Marshfield Clinic, Marshfield, Wis., Secretary.

NORTH PACIFIC SURGICAL ASSOCIATION, Vancouver, B. C., Canada, Nov. 16-17. Dr. J. A. Duncan, 509 Olive Way, Seattle, Wash., Secretary.

OKLAHOMA CITY CLINICAL SOCIETY, Biltmore Hotel, Oklahoma City, Oct. 29-Nov. 1. Mrs. Muriel R. Waller, 612 Medical Arts Bldg., Oklahoma City, Executive Secretary.

OMAHA MID-WEST CLINICAL SOCIETY, Hotel Paxton, Omaha, Oct. 29-Nov. 2. Dr. L. E. Moon, 1031 Medical Arts Bldg., Omaha 2, Secretary.

OREGON STATE MEDICAL SOCIETY, Masonic Temple, Portland, Oct. 10-13. Dr. Robert F. Miller, 833 S.W. Eleventh Ave., Portland 5, Secretary.

SOUTHERN MEDICAL ASSOCIATION, Dallas, Texas, Nov. 5-8. Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham 3, Ala., Secretary.

SOUTHWESTERN MEDICAL ASSOCIATION, El Paso, Texas, Oct. 18-20. Dr. W. W. Schuessler, 1415 First National Bank Bldg., El Paso, Texas, Secretary.

VIRGINIA, MEDICAL SOCIETY OF, Virginia Beach, Oct. 7-10. Mr. Richard H. Nash, 1105 W. Franklin St., Richmond, Executive Secretary.

WESTERN SURGICAL ASSOCATION, Broadmoor Hotel, Colorado Springs, Colo., Nov. 29-Dec. 1. Dr. Michael L. Mason, 154 Erie St., Chicago 11, Secretary.

INTERNATIONAL

AUSTRALASIAN MEDICAL CONGRESS, Melbourne Victoria, Australia, Aug. 22-30. Dr. C. H. Dickson, Medical Society Hall, 426 Albert St., East Melbourne, Victoria, Australia, Hon. General Secretary.

COMMONWEALTH AND EMPIRE HEALTH AND TUBERCULOSIS CONFERENCE, Central Hall, London, England, July 8-13. Dr. J. H. Harley Williams, Tavistock House North, Tavistock Sq., London, W.C.1, England, Secretary General.

INTER-AMERICAN CONGRESS OF SURGERY, Buenos Aires, Argentina, Oct. 1-6.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, Mexico City, Mexico, Dec. 11-19. Mrs. Grace E. O'Neill, Division of World Affairs, National Association on Mental Health, 1790 Broadway, New York 19, N. Y.

INTERNATIONAL CONGRESS ON NEUROPATHOLOGY, Rome, Italy, Sept. 8-13. Dr. Armando Ferraro, 722 W. 168th St., New York, N. Y., U. S. A., Secretary General.

INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE, London, England, July 14-19. Dr. A. C. Boyle, 45, Lincoln's Inn Fields, London, W.C.2, England, Hon. Secretary.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY, Mexico City, Mexico, Jan. 6-12. Dr. Luis Sanchez Bulnes, Gomez Farias 19, Mexico 4, D.F., Secretary-General.

PAN AMERICAN CONGRESS OF PEDIATRICS, Montevideo, Uruguay, Dec 5-8. Dr. Maria Luisa Saldien de Rodriguez, Avenida 18 de Julio, 1246, Montevideo, Uruguay, General Secretary.

PAN PACIFIC SURGICAL ASSOCIATION CONGRESS, Honolulu, Hawaii, Nov. 7-19. Dr. Forrest J. Pinkerton, Suite 7, Young Bldg., Honolulu, Hawaii, President.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Oral.* Memphis, Oct. 14-17. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Chicago, March 1952. *Oral.* Chicago, May 1952. Final date for filing application is Feb. 1, 1952. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Various centers, Oct. 15. Final date for filing applications was May 1. *Oral.* The schedule of oral examinations for 1951 has been arranged on a regional basis as follows: New York, Nov. 12-15, covering Maine, Massachusetts, New Hampshire, New York and Vermont. San Francisco, Oct. 22-24, covering Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming. Final date for filing applications was Sept. 1.

Oral examinations in the subspecialties will be held at the same time and place and on the same distribution.

Exec. Sec., Dr. William A. Werrell, 1 W. Main St., Madison 3.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, Oct. 25-26. *Oral.* Chicago, May 1952. Final date for filing applications for the May 1952 examination is Jan. 1, 1952. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written.* Feb. 1, 1952. Final date for filing applications is Nov. 1. *Oral.* Chicago, June 7-13, 1952. Final date for filing application is Feb. 1, 1952. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Twenty-five centers, Feb. 4-5, 1952. *Oral.* Chicago, October 8-13. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Final date for filing applications for the 1952 Part II examinations is Nov. 30, 1951. Sec., Dr. Harold A. Sofield, 122 S. Michigan Ave., Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, Oct. 8-12. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Buffalo, Oct. 26-28. Ex. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

AMERICAN BOARD OF PLASTIC SURGERY: Denver, Oct. 27-29. Final date for filing of case reports was Aug. 30. Sec., Dr. Bradford Cannon. Office of the Board: 4647 Pershing Ave., St. Louis 8.

AMERICAN BOARD OF PREVENTIVE MEDICINE: *Written.* San Francisco, October 28. *Oral.* San Francisco, October 29. Sec., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore 5.

AMERICAN BOARD OF PROCTOLOGY: Philadelphia, Nov. 17-18. Sec., Dr. Louis A. Buie, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Oral* New York, Dec. 17-18. Final date for filing applications was Sept. 1. Act. Sec., Dr. David A. Boyd Jr., 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various centers, Oct. 1951. Final date for filing applications was July 1. *Written.* Various Centers. March 1952. Final date for filing application is Dec. 1, 1951. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

BOARD OF THORACIC SURGERY: *Oral.* St. Louis, Nov. 2. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2, Mich.

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 9-13, 1952. Final date for filing applications is Sept. 1. Sec., Dr. Harry Culver, 30 Westwood Rd., Minneapolis 16.

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DEATHS

Reed, Alfred Cummings ✠ Mill Valley, Calif.; born in Pleasant Hill, Mo., Dec. 2, 1884; University and Bellevue Hospital Medical College, New York, 1910; diplomate of tropical medicine and hygiene, London School of Tropical Medicine and Hygiene, 1928; assistant surgeon, U. S. Public Health Service from 1911 to 1913 and physician for Yale Hospital at Changsha, China, from 1913 to 1915; from 1916 to 1928 associate professor of medicine at Stanford University School of Medicine, in San Francisco, where since 1942 he was associate clinical professor of medicine; from 1928 to 1942 professor of tropical medicine and head of the Pacific Institute of Tropical Medicine at the University of California Medical School; served during World War I; specialist certified by the American Board of Internal Medicine; past president of the American Society of Tropical Medicine, of which he had been councilor and secretary-treasurer; councilor of the American Academy of Tropical Medicine from 1937 to 1942; secretary for the United States of the Royal Society of Tropical Medicine and the Far Eastern Association of Tropical Medicine; member of the American Association for the Advancement of Science, Pasteur Society, Phi Beta Kappa, Delta Omega, Sigma Xi, and Phi Beta Pi; consultant on tropical medicine at Children's, Chinese, Mount Zion, and Marine hospitals, all in San Francisco; served as consultant and branch chief of tropical medicine for the Veterans Administration; editor of the *California State Medical Journal* from 1917 to 1922 and formerly editor of "Health for Travelers"; author of "Tropical Medicine in the United States"; co-author of "Handbook of Tropical Medicine"; received the honorary doctor of science degree from Pomona College in Claremont, Calif., in 1935; died June 20, aged 66, of adenocarcinoma of the colon.

Anspach, Brooke M. ✠ Ardmore, Pa.; born in Reading, Pa., March 3, 1876; University of Pennsylvania Department of Medicine, Philadelphia, 1897; formerly on the faculty of his alma mater; professor emeritus of gynecology at Jefferson Medical College of Philadelphia; specialist certified by the American Board of Obstetrics and Gynecology; counsellor, American Gynecological Club; member of the American Gynecological Society, of which he had been past president and treasurer; fellow of the American College of Surgeons and member of the board of governors; fellow of the College of Physicians of Philadelphia; an Associate Fellow of the American Medical Association and from 1912 to 1917 secretary of the Section on Obstetrics, Gynecology and Abdominal Surgery, and chairman 1917-1918; served on the staffs of the Philadelphia General Hospital, Stetson Hospital, Jefferson Medical College Hospital in Philadelphia and Bryn Mawr (Pa.) Hospital; in 1936 awarded an honorary degree of doctor of science from Lafayette College in Easton, and awarded the same degree from Jefferson in 1946; author of a book entitled "Gynecology"; died July 8, aged 75.

Landry, Jerome Emanuel ✠ New Orleans; born in New Orleans, Aug. 6, 1881; Medical Department of Tulane University of Louisiana, New Orleans, 1908; member of the Southeastern Surgical Congress, Southern Medical Association and the Catholic Physicians Guild; second vice-president of the Orleans Parish Medical Society in 1920 and its third vice-president in 1925; served as first vice-president of the Louisiana State Medical Society, Louisiana Surgical Society, and the New Orleans Graduate Medical Assembly; fellow of the American College of Surgeons; formerly on the teaching staff of the Tulane Post Graduate School of Medicine, serving in the capacity of assistant professor of operative and clinical surgery; chief of the surgical division and senior visiting surgeon at the Charity Hospital; consultant in gynecology and obstetrics at the New Orleans Dispensary for Women and Children and was a visiting surgeon of Hotel Dieu, where he had been president of the staff; died July 14, aged 69, of coronary occlusion.

✠ Indicates Fellow of the American Medical Association.

Hartwell, Samuel Willard, Lansing, Mich.; born in New Hampton, Ia., Sept. 20, 1882; State University of Iowa College of Medicine, Iowa City, 1906; specialist certified by the American Board of Psychiatry and Neurology; emeritus professor of psychiatry at the University of Buffalo School of Medicine in Buffalo, N. Y.; member of the American Psychiatric Association and the American Orthopsychiatric Association, of which he had been president; served overseas during World War I; director of the outpatient department of Worcester State Hospital and the Child Guidance Clinic in Worcester, Mass., from 1929 to 1935; formerly director of the Child Guidance Clinic in Grand Rapids, Mich.; assistant director of the state department of mental health; author of "Practical Psychiatry and Mental Hygiene" and "A Citizens' Handbook of Sexual Abnormalities and the Mental Hygiene Approach to Their Prevention"; died July 30, aged 68, of coronary occlusion.

Haney, William Porter ✠ Omaha; born in Omaha Feb. 5, 1877; Rush Medical College, Chicago, 1901; an Associate Fellow of the American Medical Association; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; assistant professor emeritus, otorhinology, at the University of Nebraska College of Medicine; affiliated with Creighton Memorial St. Joseph's Hospital, University of Nebraska Hospital, St. Catherine's Hospital, and the Bishop Clarkson Memorial Hospital, where he died July 19, aged 74, of heart disease.

Reineking, Walter Clarence, Jacksonville, Ill.; born in Franklin, Wis., March 10, 1881; Wisconsin College of Physicians and Surgeons, Milwaukee, 1907; member of the American Medical Association, American College of Chest Physicians, and the American Trudeau Society; superintendent and medical director of the Morgan County Tuberculosis Sanatorium; at one time medical director and superintendent of the Rockford (Ill.) Municipal Sanatorium; on the staff of Passavant Memorial Hospital; died in Madison General Hospital, Madison, Wis., July 11, aged 70, of extensive cerebral contusions as the result of an automobile accident.

Jewett, David Baldwin, Rochester, N. Y.; born in Rochester, May 29, 1880; New York Homeopathic Medical College and Hospital, New York, 1902; member of the American Medical Association; past president of the Rochester Academy of Medicine; served during World War I; associated with Genesee Hospital since he served his internship there, and completed twenty-five years' service as chief of the medical service in 1946 when he was named emeritus director of medicine; received the honorary degree of master of science from Trinity College, Hartford, Conn.; died July 12, aged 71, of coronary thrombosis.

Shupe, Thomas Pollock, Delray Beach, Fla.; born in Cannonsburg, Pa., Aug. 8, 1886; Western Reserve University Medical Department, Cleveland, 1911; specialist certified by the American Board of Urology; member of the American Association of Genitourinary Surgeons and the American Urological Association; fellow of the American College of Surgeons; served during World War I; formerly practiced in Cleveland, where he was affiliated with St. Luke's and Lutheran hospitals; served as secretary of the Cleveland Medical Library Association; died in West Palm Beach July 9, aged 64, of coronary thrombosis.

Birdsall, Joseph Cooper ✠ Philadelphia; born in 1882; University of Pennsylvania School of Medicine, Philadelphia, 1911; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of Surgeons; governor and past president of the Medical Club of Philadelphia; professor of urology at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; consulting chief urologist at the Presbyterian Hospital; consulting urologist for the Pennsylvania Railroad; died while playing golf in Scranton June 30, aged 68.

Armstrong, Carroll D., ✠ Salina, Kan.; Chicago Homeopathic Medical College, 1903; served on the staffs of the Ellsworth (Kan.) County Veterans Memorial Hospital and St. John's Hospital; died July 11, aged 70, of coronary heart disease and arteriosclerosis.

Bagby, Harold James ✠ Coffeyville, Kan.; Northwestern University Medical School, Chicago, 1920; for many years president of the school board and chief surgeon for the Missouri Pacific Railroad; on the staff of Coffeyville Memorial Hospital, where he died July 6, aged 56, of uremia, malignant hypertension and cerebral thrombosis.

Behle, Augustus Calvin, Long Beach, Calif.; Rush Medical College, Chicago, 1894; member of the American Medical Association and in 1907 a member of its House of Delegates; fellow of the American College of Surgeons; honorary life member and past president of the Utah State Medical Association; formerly practiced in Salt Lake City, where he was affiliated with St. Mark's Hospital; died in July, aged 80.

Bennett, Edmund Francis Jr., Escondido, Calif.; University of Illinois College of Medicine, Chicago, 1925; at one time practiced in Chicago; died in the U. S. Naval Hospital, San Diego, July 5, aged 50, of intestinal giant cell lymphoma.

Bessie, Abraham ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1911; affiliated with St. Elizabeth's Hospital in New York; died in Glen Cove, L. I., July 17, aged 64, of heart disease.

Bresnick, Nathan T., ✠ Boston; Tufts College Medical School, Boston, 1927; assistant in medicine from 1931 to 1936 and instructor in medicine from 1936 to 1950 at his alma mater; affiliated with Boston City and Beth Israel hospitals; died July 8, aged 47, of heart disease.

Brooks, Arbie LeRoy ✠ Pontiac, Mich.; University of Colorado School of Medicine, Denver, 1928; member of the Industrial Medical Association; medical director of the Fisher Body Plant; on the staffs of St. Joseph's Hospital and Pontiac General Hospital, where he died July 12, aged 61, of coronary thrombosis.

Buckley, Madison Henry, Martin, Tenn.; University of Tennessee College of Medicine, Memphis, 1930; member of the American Medical Association; served during World War II; affiliated with Obion County General Hospital in Union City; died in Baptist Memorial Hospital, Memphis, July 14, aged 53, of injuries received in an automobile accident.

Buckmiller, Frank Charles ✠ Bridgeport, Conn.; University of Vermont College of Medicine, Burlington, 1914; examining physician with the State Athletic Commission; died July 7, aged 62, of coronary thrombosis.

Calhoun, Audley Herbert, Phoenix, Ariz.; Starling Medical College, Columbus, 1906; member of the American Medical Association and the Ohio State Medical Association; died July 9, aged 71, of coronary occlusion.

Cash, Stanmore Langford ✠ New York; University and Bellevue Hospital Medical College, New York, 1899; clinical professor of gastroenterology, New York Polyclinic Medical School and Hospital; died July 6, aged 77, of coronary arteriosclerosis.

Catlin, Sanford Robinson ✠ Rockford, Ill.; Harvard Medical School, Boston, 1897; an Associate Fellow of the American Medical Association; fellow of the American College of Surgeons; served during World War I; member and past president of the staff, Rockford Memorial Hospital, where he died July 14, aged 79, of cerebral hemorrhage.

Coats, Albert James ✠ Boise, Idaho; Northwestern University Medical School, Chicago, 1907; during World War II received a citation from President Roosevelt for his services in the Red Cross; affiliated with St. Luke's and St. Alphonsus hospitals; accidentally drowned in Henry's Lake, Staley Springs, July 1, aged 76.

Coleman, Luther Shannon, Theodore, Ala.; (licensed in Alabama in 1909); member of the American Medical Association; died June 10, aged 73, of coronary occlusion.

Comfort, Clifford Vinal Craig ✠ Rochester, N. Y.; University of Buffalo School of Medicine, 1897; for many years coroner's physician for Monroe County; served on the staff of Park Avenue Hospital and the Monroe County Infirmary; died in Parkview Sanatorium July 16, aged 81, of cerebral hemorrhage.

Cooper, Charles Miner, San Francisco; University of Edinburgh Faculty of Medicine, Scotland, 1897; clinical professor of medicine, emeritus, Stanford University School of Medicine; formerly on the staff of the University of California Medical School; died in Stanford University Hospitals July 9, aged 77, of ruptured aneurysm of the aorta.

Corrado, Alfred Blaise ✠ Brooklyn; Long Island College of Medicine, Brooklyn, 1931; affiliated with St. Mary's Hospital, where he died July 15, aged 45, of bronchopneumonia and chronic nephrosis.

Counts, Herbert Walter, Jacksonville, Fla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1911; member of the American Medical Association; died July 4, aged 67, of cerebral thrombosis.

Coyle, William Joseph ✠ Louisville, Ky.; University of Louisville School of Medicine, 1939; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; on the staffs of St. Joseph Infirmary, Kentucky Baptist, St. Anthony and SS. Mary and Elizabeth hospitals; died July 3, aged 41, of an accidental overdose of barbiturate.

Crumrine, Ralph Milton ✠ Los Angeles; Harvard Medical School, Boston, 1925; member of the American Society of Clinical Pathologists; died July 10, aged 63, of coronary occlusion.

Davis, John Morgan, Tarkio, Mo.; University of Missouri School of Medicine, Columbia, 1885; for many years county physician; died June 30, aged 88, of cerebrovascular accident.

Day, Charles Alvin, Ashley, Ohio; Ohio Medical University, Columbus, 1904; died in Galion June 1, aged 81, of cerebral thrombosis and pneumonia.

Durham, Clarence Judson ✠ Muskegon, Mich.; Chicago Homeopathic Medical College, 1902; for many years affiliated with Mercy and Hackley hospitals, where he died July 10, aged 74, of uremia.

Ellis, Charles A., Denver, Colo.; Kentucky School of Medicine, Louisville, 1898; died July 8, aged 89, of a cardiac infarct.

Estes, Neal D., Tulsa, Okla.; (licensed in Arkansas in 1903); served during the Spanish-American War; died in the Veterans Administration Hospital, Muskegee, June 10, aged 73, of cerebrovascular accident.

Fishburne, Skottowe Bellinger, Columbia, S. C.; Medical College of the State of South Carolina, Charleston, 1900; member of the American Medical Association; for many years an examiner for the Veterans Administration; served during World War I; formerly city health officer and county physician; for many years a trustee at his alma mater; died in the Veterans Administration Hospital July 7, aged 76, of hypertensive heart disease.

Friesen, Henry J. ✠ Glendale, Calif.; Northwestern University Medical School, Chicago, 1910; specialist certified by the American Board of Otolaryngology; fellow of the American College of Surgeons; past president of the Glendale Branch of the Los Angeles County Medical Society; on the staffs of Behrens Memorial Hospital and Glendale Sanitarium and Hospital; died July 6, aged 71, of ventricular fibrillation.

Frye, Oscar Blaine, Grand Rapids, Mich.; Detroit College of Medicine, 1907; at one time city bacteriologist and assistant city health officer; died July 9, aged 65, of coronary thrombosis.

Garrett, John Abner, Meigs, Ga.; Atlanta College of Physicians and Surgeons, 1906; member of the American Medical Association; died June 5, aged 71, of coronary occlusion.

Gilbert, Frederick James Simpson, Columbia, S. C.; Medical Department of Tulane University of Louisiana, New Orleans, 1891; died in Providence Hospital July 11, aged 87, of bronchopneumonia.

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Gribble, Le Grande G., Pomeroy, Ohio; Medical College of Ohio, Cincinnati, 1896; member of the American Medical Association; died June 2, aged 76, of complications as the result of a fall.

Grimes, William Lawrence, Winston-Salem, N. C.; Johns Hopkins University School of Medicine, Baltimore, 1910; member of the American Medical Association; consulting surgeon at City Memorial Hospital; died July 9, aged 66, of bronchopneumonia.

Grove, Charles Edward, Spokane, Wash., Hahnemann Medical College and Hospital of Philadelphia, 1889; member of the American Medical Association; served on the staff of St. Luke's Hospital; died in Sacred Heart Hospital July 10, aged 87, of cerebral thrombosis.

Hadden, Claude Eugene, Indianapolis; Indiana University School of Medicine, Indianapolis, 1925; member of the American Medical Association; at one time deputy coroner of Marion County; served as physician to the State Athletic Commission; affiliated with Methodist Hospital and St. Vincent's Hospital, where he died June 20, aged 54, of coronary occlusion.

Hall, Price Barringer ⊕ Columbia, S. C.; North Carolina Medical College, Davidson, 1903; served during World War I; for many years affiliated with the Veterans Administration regional office; died in Alachua General Hospital, Gainesville, Fla., June 29, aged 71, of coronary thrombosis.

Harper, Daniel Luther, Meridian, Miss.; Medical College of Alabama, Mobile, 1906; died in Riley's Hospital June 29, aged 69, of arteriosclerosis and myocardial failure.

Hellebrandt, Frank J., St. Petersburg, Fla.; College of Physicians and Surgeons of Chicago, 1895; died in the Medical College of Virginia Hospital, Richmond, July 8, aged 81, of coronary occlusion.

Hotz, John William ⊕ St. Louis; St. Louis University School of Medicine, 1925; fellow of the American College of Surgeons; instructor in surgery at his alma mater; served during World War I; surgeon, Deaconess Hospital and St. Mary's Group of Hospitals; died in Deaconess Hospital June 26, aged 51, of pulmonary infarct.

Howe, Charles Lester, Mercer, Pa.; Kentucky School of Medicine, Louisville, 1893; member of the American Medical Association; on the staff of the Mercer Cottage Hospital; vice-president of the board of trustees of the Farmers National Bank; died July 7, aged 85, of myocardial degeneration.

Judy, William John ⊕ Parkersburg, W. Va.; Medical College of Virginia, Richmond, 1904; also a Baptist minister; honorary member and formerly vice-president of the Parkersburg Academy of Medicine; died July 6, aged 73, of coronary thrombosis.

Karr, Herbert Stanley ⊕ Detroit; Detroit College of Medicine, 1908; affiliated with Harper Hospital and the Florence Crittenton Hospital, where he died June 12, aged 68, of carcinoma.

Knight, J. Oliver ⊕ Louisville, Ky.; Louisville (Ky.) Medical College, 1907; affiliated with Kentucky Baptist and Deaconess hospitals and Norton Memorial Infirmary; an honorary member of the staff of St. Anthony Hospital; medical examiner for Selective Service during World Wars I and II; died June 23, aged 66, of cardiovascular disease and diabetes mellitus.

Krueger, William F., Milwaukee; Marquette University School of Medicine, Milwaukee, 1913; member of the American Medical Association; died in St.. Joseph's Hospital June 6, aged 72, of carcinoma of the stomach.

Lee, Allen Hays, Terre Haute, Ind.; Indiana University School of Medicine, Indianapolis, 1926; member of the American Medical Association; on the staff of Union and St. Anthony's hospitals; died in Flower and Fifth Avenue Hospitals in New York July 1, aged 56, of hypertension.

Leyda, Paul Leighton, Englewood, Colo.; Jefferson Medical College of Philadelphia, 1909; at one time practiced in Frederick, where he was mayor and president of the school board; veteran of the Spanish-American War and World War I; died in the Veterans Administration Hospital, Fort Logan, July 6, aged 71, of cerebral hemorrhage.

McCaskill, Melvin Edgar, Little Rock, Ark.; St. Louis University School of Medicine, 1905; associate professor of gynecology at University of Arkansas School of Medicine; member of the American Medical Association; past president of the Arkansas Medical Society, the Pulaski County Medical Society, and the Arkansas State Board of Health; affiliated with St. Vincent Infirmary and Arkansas Baptist Hospital; died July 9, aged 69, of cerebral hemorrhage and peptic ulcer.

Mahady, Stephen Augustus, Utica, N. Y.; Baltimore Medical College, 1902; member of the American Medical Association; served during World War I; at one time practiced in Waterville, N. Y., where he was county coroner; formerly deputy health officer; on the staff of St. Elizabeth Hospital; supervisor of medical inspection in Utica schools; died June 19, aged 73, of coronary thrombosis.

Marsh, Francis Aloysius, Salt Lake City; St. Louis University School of Medicine, 1927; served during World War I; formerly affiliated with the Indian Service; died July 19, aged 52.

Mayer, Edward Anton, Kaukauna, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; also a graduate in pharmacy; formerly city physician; died May 21, aged 78, of carcinoma.

Moore, William Banner, Rural Retreat, Va.; College of Physicians and Surgeons, Baltimore, 1893; died May 30, aged 81, of cerebral hemorrhage.

Newton, Ralph Waldo ⊕ Major United States Army, retired, Santa Rosa, Calif.; New York University Medical College, New York, 1898; member of the Massachusetts Medical Society; served in the Philippine Islands from 1900 to 1905 and again from 1912 to 1915 while in the Medical Reserve Corps of the Army; entered the Medical Corps of the regular Army in 1918; retired for disability, May 31, 1933; died July 21, aged 76, of coronary thrombosis.

O'Brien, David William, Fishersville, Va.; Jefferson Medical College of Philadelphia, 1925; died in the King's Daughters' Hospital, Staunton, June 23, aged 53, of coronary thrombosis.

Parham, LeRoy Glenn ⊕ Atlanta, Ga.; Emory University School of Medicine, 1915; served during World War I; died July 12, aged 62, of coronary thrombosis.

Parrish, Isaac Newton, Freeman, Mo. (licensed in Missouri in 1901); member of the American Medical Association; served during World War I; died July 1, aged 77, of pulmonary thrombosis.

Perkins, Robert Browning, Houston, Texas; Washington University School of Medicine, St. Louis, 1944; member of the American Medical Association; served during World War II; died in San Antonio July 3, aged 31, of injuries received in an automobile accident.

Pierce, William, Chicago; Washington University School of Medicine, St. Louis, 1903; died July 6, aged 77, of acute coronary thrombosis.

Pringle, Jesse Alva, Oconomowoc, Wis.; State University of Iowa College of Medicine, Iowa City, 1901; member of the Iowa State Medical Society and the American Medical Association; died recently, aged 75, of cerebral hemorrhage, hypertension, and coronary heart disease.

Redden, James Elmer, Casa Grande, Ariz.; College of Physicians and Surgeons, Little Rock, 1908; city health officer; district physician for the Southern Pacific Railroad; affiliated with Norman Hospital, where he died July 6, aged 66, of coronary thrombosis.

Reed, Palmer Harding ⊕ El Paso, Texas; Tulane University of of Louisiana School of Medicine, New Orleans, 1928; member of the American College of Chest Physicians; formerly practiced in Paducah, Ky., where he was past president of the McCracken County Medical Society; died June 30, aged 46, of bronchial asthma and congestive heart failure.

Repper, Paul Aloysius ⊕ McKeesport, Pa.; Loyola University School of Medicine, Chicago, 1927; past president of the McKeesport Academy of Medicine; affiliated with McKeesport Hospital; died July 2, aged 55, of coronary occlusion.

Richardson, Ira Walter ✙ Wakefield, Mass.; Harvard Medical School, Boston, 1915; served in France during World War I; since 1944 medical examiner of the Third Middlesex District; past president of the Middlesex East District Medical Society; school physician; chief of medical staff, Melrose (Mass.) Hospital, where he died July 1, aged 63, of cerebral hemorrhage.

Roberts, James Stanton, Chester, N. H.; Harvard Medical School, Boston, 1893; died July 11, aged 79, of metastatic carcinoma.

Rust, Aloney Lyman, Malone, N. Y.; Syracuse University College of Medicine, 1900; on the staff of the Alice Hyde Memorial Hospital; died July 1, aged 74, of arteriosclerotic heart disease and diabetes mellitus.

Ryan, Ralph R., Scarsdale, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1905; member of the American Medical Association; served as health officer; a founder and director of Scarsdale National Bank; died in Santa Monica, Calif., July 1, aged 71, of heart disease.

Sauer, William Walter, Marietta, Ohio; Miami Medical College, Cincinnati, 1905; life member of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Otolaryngology; on the staff of Marietta Memorial Hospital; died June 30, aged 68, of cerebral embolism.

Schnipelsky, Louis Arthur ✙ Bath, N. Y.; University of Bristol Faculty of Medicine, England, 1936; affiliated with the Veterans Administration Center; died in Bath Memorial Hospital recently, aged 44, of myocardial infarction.

Schweitzer, Ada Estelle ✙ Indianapolis; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1907; an Associate Fellow of the American Medical Association; for many years director of the division of infant and child hygiene of the state board of health; member of the American Academy of Pediatrics; fellow of the American College of Physicians; died July 2, aged 78, of cerebral hemorrhage.

Sheeran, James Douglas, Albany, N. Y.; Long Island College of Medicine, Brooklyn, 1936; served during World War II; member of the American Medical Association; affiliated with the Veterans Administration; died in the Veterans Administration Hospital June 18, aged 42, of heart disease.

Sherman, Morris Mortimer, Brooklyn; Long Island College Hospital, Brooklyn, 1911; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; chief alienist of the Kings County Hospital in Brooklyn, Queens General Hospital in Jamaica and Richmond Hospital in Staten Island for many years; on the staff of Unity Hospital; died June 21, aged 62, of carcinoma of the bladder.

Stenbuck, Joseph Benjamin ✙ New York; Columbia University College of Physicians and Surgeons, New York, 1917; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; served overseas during World Wars I and II; affiliated with Harlem and Sydenham hospitals; died June 1, aged 59, of coronary thrombosis.

Stowers, Guy A., Gilman City, Mo.; Kansas City (Mo.) Medical College, 1900; died in the Bethany (Mo.) Hospital June 11, aged 77, of injuries received in an automobile accident.

Stratton, Forrest LeRoy ✙ Kilgore, Texas; University of Oklahoma School of Medicine, Oklahoma City, 1926; died recently, aged 47, of acute hepatitis and cirrhosis of the liver.

Strayer, John Curvin ✙ Buchanan, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1912; past president of the Berrien County Medical Society; formerly village president and mayor; president and for many years a member of the board of education; on the staff of Pawating Hospital in Niles and Memorial Hospital in South Bend, Ind.; died June 10, aged 64, of subarachnoid hemorrhage.

Stuhr, Walter Anthony ✙ Chicago; Northwestern University Medical School, Chicago, 1910; served on the staff of Grant Hospital; died in Council Bluffs, Iowa, June 5, aged 70, of acute myocardial infarction.

Summers, Porter Whitefield, Chicago; Bennett Medical College, Chicago, 1912; died in St. Elizabeth's Hospital June 8, aged 68, of arteriosclerotic heart disease.

Threlkeld, Richard L., Denver; Louisville (Ky.) Medical College, 1902; member of the American Medical Association; died July 5, aged 74, of acute coronary occlusion.

Tracy, Robert Graham, New Haven, Conn.; Yale University School of Medicine, New Haven, 1900; affiliated with Grace Hospital; died July 7, aged 73, of anuria.

Viley, Leland Peak, Kansas City, Mo.; Washington University School of Medicine, St. Louis, 1908; member of the American Medical Association; died in the Neurological Hospital June 3, aged 68, of terminal pneumonia.

Walker, Charles Bickley, Ripley, Tenn.; Vanderbilt University School of Medicine, Nashville, 1886; died June 12, aged 92.

Walker, Moses Rollin ✙ Oakland, Calif.; College of Physicians and Surgeons, San Francisco, 1901; an Associate Fellow of the American Medical Association and in 1915 and 1921 a member of its House of Delegates; formerly practiced in Reno, Nev., where he was medical supervisor for the public schools, president of the board of education, and for one term city health officer; a member and past president of the Nevada State Medical Association; died June 10, aged 88, of intestinal obstruction.

Warren, Robert Emmett, Nashville, Tenn.; (licensed in Tennessee in 1910); member of the American Medical Association; died July 15, aged 64.

Weinstock, Michael Benjamin ✙ Newark, N. J.; University and Bellevue Hospital Medical College, New York, 1917; fellow of the American College of Surgeons; served during World Wars I and II; on the staffs of City Hospital and the American Legion Memorial Hospital; died June 28, aged 56, of lobar pneumonia and carcinoma of the lung.

Welfer, Clarence Robinson ✙ Los Angeles; University of Pittsburgh School of Medicine, 1919; died recently, aged 56, of coronary occlusion.

Wheeler, William Martin, Sedalia, Mo.; Kentucky School of Medicine, Louisville, 1893; member of the American Medical Association; served overseas during World War I; county coroner for one term; shop surgeon for the Missouri Pacific Railroad; died in Missouri Pacific Hospital, St. Louis, July 22, aged 81, of carcinoma of the throat.

Wood, Dorothy Augusta ✙ San Mateo, Calif.; Stanford University School of Medicine, San Francisco, 1919; formerly on the faculty of the University of California Medical School; specialist certified by the American Board of Anesthesiology; member of the American Society of Anesthesiologists; on the staff of Mills Memorial Hospital, where she died June 8, aged 57, of coronary artery disease.

Yount, John Henry, Chicago; Vanderbilt University School of Medicine, Nashville, Tenn., 1906; died in Wesley Memorial Hospital June 6, aged 67, of peritonitis and uremia.

DIED WHILE IN MILITARY SERVICE

Hardgrave, George Louis Jr., Clarksville, Ark.; born in Clarksville, May 7, 1916; University of Arkansas School of Medicine, Little Rock, 1942; interned at St. Luke's Hospital in Jacksonville, Fla.; then was appointed assistant surgeon with the rank of lieutenant (jg) in the medical corps of the U. S. Naval Reserve; attended the Naval School of Aviation Medicine at the Naval Air Station, Pensacola, Fla., and on completion of this course was designated a flight surgeon; during World War II served at various naval air stations in the United States and on board the *USS Blakly* (DD 150); released from active duty on July 11, 1946; at the outbreak of the Korean action he volunteered and was ordered to duty Nov. 8, 1950; attended a refresher course in Aviation Medicine at the Naval Air Station, Pensacola, and was subsequently assigned to Patrol Squadron Forty-two for duty involving flying as a flight surgeon; killed in a plane crash while attempting a night single engine landing at an airfield in Japan April 22, aged 34.

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GOVERNMENT SERVICES

SELECTIVE SERVICE

The Selective Service System.—The following information was received from the National Advisory Committee to the Selective Service System, 1712 G Street, N. W., Washington, D. C., on Sept. 14, 1951.

RELEASE FROM SERVICE

The Department of the Navy is using the following policy in regard to release from service of physicians and dentists (former registrants and reservists):

	Months
Priority 1	24
Priority 2	12-24
Priority 3	24
Priority 4	
(12 months during World War II)	12-17
(Less than 12 months during World War II)	12-24

The Department of the Army is operating, at present, on the following program:

Any physician or dentist who served 12 months during World War II becomes eligible for release after 17 months of current service, except those called in Organized Reserve Units, who will serve the full 24 months.

The Department of the Air Force is operating, at present, on the following program:

Any physician, dentist or veterinarian may request release after 21 months of service. If he was in Priority 1 or 2, the 21 months must be during the present term of service.

INDUCTION GROUP

Requests for delay in active duty orders have been asked for some of those physicians who accepted commissions after receiving orders for induction, and before being inducted. This is entirely out of order except where there are very special extenuating circumstances. Therefore, the Health Resources Advisory Committee is calling all records of such cases to Washington for review. In fairness to the state committees, there have been instances where such delays have been requested and granted without the knowledge of the committee, or without regard to the advice of the committee.

PHYSICIAN DRAFT

The following item was taken from *Selective Service* for August, 1951:

The planned induction under Selective Service of 333 Priority I medical officers scheduled during the month of August has been delayed temporarily at the request of the Department of Defense.

In requesting the delay, the Department of Defense stated that the delay was based entirely upon an unanticipated and sustained increase in the number of doctors applying for Reserve Commissions in the Armed Forces. Whether or not all of the doctors, whose induction will be delayed during August, will be called during September is dependent upon the volunteer rate during the next few weeks, the Department of Defense said.

The Secretary of Defense has indicated that no reduction is anticipated, at this time, for the call of 152 Priority I doctors scheduled to be inducted during September.

PHYSICIAN INDUCTIONS

The following item was taken from *Selective Service* for September, 1951:

State Directors have reported to National Headquarters that many of the special registrants ordered by their local boards to report for induction on the July call, for 717 doctors, were found to have been previously commissioned. This brought to light the fact that the Armed Forces were not in every instance forwarding a D. D. Form 44 to his local board after a man was commissioned.

Since the July call for special registrants was issued, the Armed Forces have commissioned 429 doctors. Of this number, 333 received Army commissions, 186 Air Force, 3 Navy, and 7 were commissioned by the United States Public Health Service.

Incomplete reports from the States also disclosed that 10 doctors were declared physically unfit; 80 were reclassified, postponed, or cancelled; 2 were inducted; an indefinite number are still pending for one reason or another; and another very small number are believed to be delinquent and will be reported as such by their local boards.

Of the two inducted, it has recently been reported in the public press that one of them agreed to accept a commission after completion of 3 days' service as an enlisted man.

ARMY

Anniversary of Birth of Walter Reed.—The 100th anniversary of the birth of Walter Reed, major, U. S. Army, conqueror of yellow fever, was commemorated Sept. 13 at New York University College of Medicine, where he received his M.D. degree in 1873. The College of Medicine opened an exhibit depicting Dr. Reed's life and work, and a new portrait of the distinguished alumnus was presented to the College.

The speakers at this event were Acting Chancellor James L. Madden, of New York University; Dean Currier McEwen, of the College; and Dr. Walter Levy, president of the Alumni Association. The portrait is being carried on the cover of the current issue of the alumni magazine, the *New York University Medical Quarterly*.

Personal.—A retirement ceremony was held at Fort Monroe, Va., recently for Brig. Gen. Robert P. Williams, chief Army Field Forces Medical Section, and Col. Henry S. Blasse, post surgeon, both of whom retired after many years of faithful service in the Army Medical Corps. Brigadier General Williams, after his return from Europe, where he will visit field medical units for the Surgeon General's office, will make his home in Baltimore, where he will become deputy state health commissioner. Colonel Blasse plans to settle in San Antonio, Texas.

AIR FORCE

Award and Commendation.—The Air Force announced Sept. 4 that the Legion of Merit has been awarded to Dr. Cortez F. Enloe, a consultant to the USAF Medical Service, for wartime service in research on the effects of bombing on health and medical care. The medal was presented to Dr. Enloe by the Surgeon General of the Air Force at a ceremony in The Pentagon. During World War II, Dr. Enloe was chief of the Medical Sciences Branch of the U. S. Strategic Bombing Survey, which compiled data on planning military and civilian defense measures against aerial bombardment. His report, subsequently produced as a War Department publication "The Effects of Bombing on Health and Medical Care in Germany," has become a standard reference for military and civilian defense planning. Dr. Enloe was a major in the Medical Service during the war, and for the past two years has been a consultant to the Air Force Surgeon General's office. He is a specialist in internal medicine.

CIVIL SERVICE COMMISSION

Positions Open at St. Elizabeth's Hospital.—The Civil Service Commission announces a medical officer examination for filling the following positions in St. Elizabeth's Hospital, Washington, D. C.: rotating intern, $2,200 a year; psychiatric resident, $3,400 to $4,200 a year; surgical resident, $4,200 to $4,700 a year; and general practice resident, $3,400 to $3,800 a year. All applicants must have had appropriate education in an approved medical school. Applicants for psychiatric, surgical, and general practice resident must also have completed a one-year internship. In addition, applicants for surgical resident appointments must have completed a two-year residency in surgery. No written tests are required. The maximum age limit is 35 years.

Persons who applied for but did not receive appointments under the commission's 1950 examination for the above positions should apply for this new examination.

Information may be obtained from the U. S. Civil Service Commission, Washington 25, D. C., or from most first- and second-class post offices. Applications will be accepted until further notice by the Committee of U. S. Civil Service Examiners, St. Elizabeth's Hospital, Washington 25, D. C.

PUBLIC HEALTH SERVICE

Malaria in Returning Military Personnel.—More than 800 cases of malaria among military personnel returning from Korea have been reported to the U. S. Public Health Service by state health authorities recently. Seven states alone reported over 600 new cases in July, most of them contracted outside the United States. The seven states with the number of cases reported from each are Arkansas, 38; Colorado, 65; Georgia, 237; Kentucky, 97; Oklahoma, 101; Oregon, 29; and Wisconsin, 60 (total, 627).

These figures are only tentative, according to the Surgeon General, since many Armed Services hospitals do not report new cases to state health departments, whereas some of the cases may have been reported by more than one service hospital. It is also difficult to determine precisely the number of service-connected cases because reports from some states do not distinguish between military and nonmilitary cases or between those acquired in this country and abroad.

Despite their incompleteness, the reports to date emphasize the need for effective control measures, Dr. Scheele warns. More cases were reported in July than during the preceding six months. "As long as prompt and adequate surveillance and preventive action are taken," he stated, "a resurgence of the malaria epidemics of 25 and 50 years ago can be avoided." He added that prior to Korea, vivax malaria, which once blanketed large sections of the United States, extending as far north as Canada and incapacitating hundreds of thousands of persons annually, had virtually been eliminated from this country as a result of improved living conditions and the widespread use of insecticides. "Only two proved new cases of malaria contracted in the United States have been reported in this country so far this year," Dr. Scheele stated, "but we are continuing our investigations, through the state health departments, to ascertain the status of domestically acquired malaria."

The National Office of Vital Statistics sent a telegram to each state health department the last week in August requesting that malaria cases be included in their weekly reports to the Public Health Service. NOVS asked further that the cases be identified according to their origin—that is, whether civilian or from military establishments. NOVS asked also for state-by-state figures from Jan. 1 to the date of the telegram. This information will be made available in detail in subsequent NOVS publications.

Dr. Scheele said that all health officials must remain continuously vigilant if the spread of imported malaria is to be prevented. He pointed out that a letter was sent out by the Public Health Service early this month to all state and territorial health officers, calling for competent diagnosis, adequate treatment, prompt reporting, and preventive use of insecticides. The letter recommended that health officials notify all physicians to send blood specimen slides of malaria or suspected malaria cases to the National Depository for Malaria Slides, at Chamblee, Ga.; that they treat the patients with modern antimalarial drugs which relieve symptoms promptly, and that they recommend spraying with residual insecticides in all houses within a mile of the residences around which malarial mosquitoes may be found.

The Training of Foreign Physicians.—Training in the United States for 523 foreign physicians and other health workers during the 1951 fiscal year was arranged and supervised by the Division of International Health of the U. S. Public Health Service. This is the second year that over 500 foreign trainees have been given this service by the division. The 1951 fiscal year also marked completion of a program to train 100 Filipino public health specialists under the Philippine Rehabilitation Act of 1946. The outstanding change that occurred during the year was doubling of the number of specialists who came for training under fellowship programs. There were 290 persons in this category, compared with 134 during 1950. These trainees came from 50 countries. While the fellowships usually are for one year of training, they may be for periods of 60 to 90 days or for as long as two years. They were provided under Point IV bilateral programs of technical assistance to underdeveloped areas; under special programs of the Department of State, the Economic Cooperation Administration, the Philippine Rehabilitation Act, and the World Health Organization; and under programs sponsored by authorities for the government and relief of occupied areas, including Germany, Austria, Japan, and the Ryukyus.

There were 233 other health workers for whom the division arranged itineraries and advanced training during the year. These specialists did not hold United Nations or United States fellowships, and their training was sponsored by nongovernmental organizations or by their own governments. They came from 54 countries, with the largest number, 77, from Europe, and about 50 each from the Middle East and Africa, the Far East, and the Americas.

Investigate Outbreak of "Pleurodynia."—Two scientists from the laboratory of infectious diseases of the National Institutes of Health, Public Health Service, are in Bonham, Texas, at the request of the state health department to investigate an outbreak of illness resembling pleurodynia which has been reported in Fannin County and the nearby area. They are Dr. Robert J. Huebner, chief of the virus section of the laboratory, and Dr. Joseph A. Bell, epidemiologist. The attack rate of the disease is high, and it has appeared in all age groups, according to a report sent to the Public Health Service by Dr. George W. Cox, state health officer. It is estimated that several thousand cases have occurred since the outbreak began.

State and Federal laboratories are proceeding with an investigation to isolate the etiologic agent. This includes virus studies of stool and throat washings and complement fixation and neutralizing tests on paired blood sera. Dr. Huebner has sent 200 blood specimens by air to the infectious disease laboratory at the National Institutes of Health for additional analysis and testing. Health authorities surmise that the outbreak may represent a Coxsackie infection, possibly of the B type, but final determination awaits the outcome of laboratory studies.

Dr. Cox reports that the disease is generally mild, rather self-limited, and of short duration. Symptoms are frequently severe, consisting of fever from 101 to 104 F., nausea, vomiting, and particularly severe pain across the upper abdomen or lower chest. Frequently the patient has complained of difficult or painful breathing. Some of the earlier cases were originally thought to be appendicitis because of the localized pain in the lower right quadrant and the sudden onset of fever.

Search for Genetic Damage in Radiologists' Children.—A national survey to determine the prevalence of congenital malformations among the children of physicians, laboratory aides, and others who are constantly exposed to radiation through their work in x-ray or radium therapy will be made with the aid of a Public Health Service grant. This survey, to be made among some 4,000 radiologists in the United States, will be the first attempt to determine in a human population whether and how radiation causes important hereditary changes within a period of one or two generations. The outcome of the study, under the direction of Dr. Stanley H. Macht of the Washington County Hospital, Hagerstown, Md., may throw some light on radiation effects which may result from atomic warfare; it may reveal whether current protective measures for workers in radiological laboratories are really safe.

Dr. Macht will make his survey through a questionnaire which will ask not only what defects have developed among the children of radiological workers but also what effects radiation may have had on child bearing. (In lower mammals radiation during the period of gestation has often created marked genetic variations from normal in the offspring.) The results of this questionnaire will be compared with results of the same questionnaire sent to a group of 4,000 physicians who do not come in contact with radiation of any type.

This grant is one of 283, totalling $2,255,392, approved by the Surgeon General of the Public Health Service, following the recommendations of the National Advisory Health Council at its last meeting.

Heart Institute Grants.—The Heart Institute of the National Institutes of Health has made grants totalling $3,048,640 to 81 medical schools, hospitals, research institutions, and private individuals in 32 states, the District of Columbia, and Puerto Rico in support of basic and clinical heart research. The grants were approved by Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, on recommendation of the National Advisory Heart Council. They constitute the first of several groups of grants for heart research to be made by the institute in the new fiscal year beginning July 1. A total of $5,062,275 was awarded in support of similar research during the last fiscal year.

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FOREIGN LETTERS

SWEDEN

Comparison of Amithiozone and Paraaminosalicylic Acid.—The introduction by Domagk of amithiozone (conteben®) as a remedy for tuberculosis has been followed by a spate of publications on this subject, particularly in Germany, where this preparation is widely used. It has been well received in Sweden, where its chief competitor in this field is paraaminosalicylic acid. In 1948 the Swedish National Association Against Tuberculosis sponsored a statistical investigation of the comparative merits of paraaminosalicylic acid and expectant treatment of tuberculosis, in which results with paraaminosalicylic acid were most favorable. During the latter half of 1949 and early in 1950, an attempt was made at the Söderby Hospital to ascertain which of the two remedies, amithiozone or paraaminosalicylic acid, is the more effective in pulmonary tuberculosis.

This investigation has been reported on by Dr. Rune Raxell in the journal of the Swedish Medical Association, *Svenska Läkartidningen*, for Aug. 3, 1951. Fifty-four patients, most of them with chronic, advanced disease, unsuitable for lung collapse therapy, were selected for this investigation, 27 receiving amithiozone and 27 paraaminosalicylic acid. They received during the 12 weeks of this test only rest and the usual sanatorium regimen. None of them had hitherto received any specific chemotherapy. The amithiozone was given in an initial dose of 0.025 gm. twice daily and raised at 10-day intervals to a final dosage of 0.5 gm. four times daily. Paraaminosalicylic acid was given in four doses of 5, 2, 2, and 5 gm., for a total daily dose of 14 gm. The effects of this treatment were judged by clinical findings supplemented by sedimentation rate and sputum and roentgen findings. Both remedies scored considerable success, of approximately equal value. But several more amithiozone-treated patients had to discontinue treatment because of complications traceable to this drug than was the case with paraaminosalicylic-acid-treated patients. These complications were also more serious in the amithiozone-treated than in the paraaminosalicylic-acid-treated patients.

Corticotropin (ACTH) for Rheumatic Fever in Childhood.—At the Children's Department of the Norrköping Hospital, Brita Appelbom and Sven Törnqvist have had encouraging results with the Danish corticotropin preparation "acton," which was given to six children, 4½ to 10 years of age, with acute rheumatic fever. Their detailed records show, among other things, how promptly the electrocardiographic changes improved under this treatment. The cost of the preparation is at present about one Danish krone per milligram. Even when such treatment entails an expenditure of several hundred kroner in each case, these sums evidently represent a sound investment of capital, in view of the results achieved. All these children have been treated too recently to permit claims of lasting cure.

Swedish National Association Against Tuberculosis.—The 1950 annual report of the Swedish National Association Against Tuberculosis gives a good account of what this body is doing. In an appendix to the report is published the list of gifts received from 1904 through 1950. It is interesting to note the wide fluctuations each year in the sums given to such a representative national body. For example, 1917 was a good year, with donations amounting to over 237,000 kr., whereas in 1914 the total was less than 9 kr. The total for the whole of this period ran into millions. Other important sources of revenue were sales of Christmas and New Year seals and telegraph forms. These alone brought in over a million kr. in 1950.

The Association has many expenditures. A short film on BCG vaccination and another on mass radiography are loaned to cinemas as "curtain-raisers." Publications include the Association's quarterly journal and a great number of special reports, among them a survey of tuberculosis mortality in Sweden in 1943-1946 and a report on the activity of tuberculosis institutions in Sweden in 1949. In 1950 a statistical study of treatment with paraaminosalicylic acid (PAS) was based on the experiences of five of the Association's sanatoriums and was published in the *American Review of Tuberculosis* (Vol. 61, 1950). Another statistical study was undertaken in 1950 at four sanatoriums to ascertain the relative merits of paraaminosalicylic acid and streptomycin in the treatment of pulmonary tuberculosis. This study will be published in 1951.

The Association also makes important financial contributions to special scientific investigations. One of these is a follow-up study of school children vaccinated with BCG in Stockholm. A study by Professors Hans Davide and Hugo Theorell is concerned with antibiotics and tuberculosis, and a study by Prof. Alf Westergren deals with multiple infections associated with tuberculosis. In 1950 the Association helped to finance the visits of Swedish scientists to England, Italy, Argentina, Switzerland, France, and other countries.

NORWAY

Hepatitis Among Laboratory Nurses.—At the Ullevaal Hospital some curious observations have been made concerning the liability of laboratory nurses to develop hepatitis. Every year at this hospital there are usually 500 probationer nurses, 645 trained nurses and 55 laboratory nurses who first were given the usual nursing training. Between Jan. 1, 1945, and Dec. 31, 1951, there were as many as 58 cases of hepatitis among the nursing staff. Nineteen of these patients were probationer nurses, another 19 were fully trained nurses, and 20 were laboratory nurses at the time they fell ill. Most of these laboratory cases occurred during the first year of laboratory service. Dr. V. Gaustad, who supplied these figures, pointed out how difficult it is in practice to protect laboratory nurses from infection when they have to deal with samples of blood and plasma. The ideal would be to produce an effective vaccine; he referred hopefully to the experimental investigations recently undertaken by Henle and his associates, whose findings were published in 1950 in the *Journal of Experimental Medicine*.

Norwegian National Association Against Tuberculosis.—The annual meeting of the Association on May 28 was the occasion for a series of conferences on its functions and the expansion or limitation of its activities according to the varying needs of the times. In 1946 the name of the organization was expanded to *The National Association Against Tuberculosis for the Health of the Nation*. While tuberculosis is decreasing year by year, the revenue of the Association has decidedly increased. For this reason also, it seemed fitting that the organization look further afield than to the immediate care of the tuberculous.

One of the principles of the Association in the past has been to take up new work and later, when everything was running smoothly, to pass it on to the state or municipalities in order to turn to more pressing needs. Thus the Association started the BCG laboratory in Bergen in 1937, under the leadership of Dr. Konrad Birkhaug, who had brought a BCG strain from the Pasteur Institute in Paris. The work and costs of this laboratory have increased greatly, especially since 1947, when BCG vaccination was made compulsory in Norway. At its annual meeting this year the Association called on the state to take over this laboratory as of July 1, 1952, when its equipment would be offered as a gift to the state.

With revenues set free by steps such as this, the Association will be able to expand its activities in other directions, notably the training of nurses, the welfare of the aged, and popular health education. The Association's secretary-general, Dr. Tobias

The items in these letters are contributed by regular correspondents in the various foreign countries.

Gedde-Dahl, delivered a lecture at the annual meeting of the Association on health control in country districts, a subject on which he acquired much first-hand knowledge during his work as a district medical officer of health on the west coast of Norway.

Prognosis for Bacterial Endocarditis.—To learn the outlook for cases of bacterial endocarditis treated with antibiotics, Drs. S. Aarseth and V. Gaustad of the Ullevaal City Hospital of Oslo have undertaken a follow-up study of the 50 cases of bacterial endocarditis in this hospital between May 1, 1945 and Sept. 1, 1950. These cases were classified acute and subacute and, also according to the bacteriologic findings, the classification followed being that adopted by the American Heart Association. In six cases penicillin was supplemented by sulfathiazole or sulfadiazine, with results giving no particular credit to either of these chemicals. Of the 40 patients with subacute endocarditis, 34 were given penicillin, the dosage of which has been considerably raised since it was first given in this hospital in 1945. The importance of adequate dosage was stressed by the facts that seven of the eight patients receiving a total dose of less than five million units of penicillin died during treatment, whereas among the 18 receiving more than a total of 20 million units there was only one who died during treatment. Hence the conclusion that, if penicillin is to be effective, two million units should be given daily for four to six weeks, i. e., a total dose of 56 to 84 million units.

The follow-up examinations showed that 17 of the 50 patients (14 women and 3 men) were still alive after an observation period of 4 to 43 months, the observation period being longer than a year in 14 cases. Among the 10 patients with acute endocarditis, there was only one survivor. Among 18 patients in whom Streptococcus viridans was found, there were nine survivors. Drs. Aarseth and Gaustad conclude that recovery from bacterial endocarditis may be expected in about two-thirds of such cases when treatment with antibiotics is started early enough. They suggest that when the above-mentioned dosage of penicillin proves inadequate, it should be raised to 40 million units daily or should be supplemented or replaced by some other antibiotic, such as streptomycin or aureomycin

Radiographic and Tuberculin Examinations for Tuberculosis.—Dr. S. Garegg, who is attached to the Tuberculosis Department of the Oslo Public Health Service, has recently given an account of radiographic examinations of special groups, such as the employees of industrial firms, within the community. Within such groups many accept a free radiographic examination, largely because the members of such a group persuade each other to accept. Thus in 1949, between 90 and 95% of the employees of 399 industrial concerns accepted this invitation, whereas in Oslo as a whole it was accepted by 70% or less.

Between 1940 and 1949, Dr. Garegg found there was practically no change in the relative number of positive and negative tuberculin reactors among the employees of industrial firms, but during the same period there was a considerable difference in the percentage of negative reactors accepting BCG vaccination. Thus only 63.3% of the negative reactors accepted this treatment in 1940, whereas 83.3% did so in 1949. In the interval BCG vaccination had been made compulsory by a law whose influence has evidently been powerful, though it has been enforced with much leniency. The influence of the BCG law is also to be noticed in the case of tuberculin-negative students, only 78.5% of whom accepted BCG vaccination in 1947, whereas 95.2% did so in 1949.

Since special measures for the examination for tuberculosis of all the students in Oslo were adopted, there has been a remarkable decline of tuberculosis morbidity among them. New cases of tuberculosis among students examined amounted to 1.33% in 1946, whereas the corresponding figure was down to 0.06% in 1949. The corresponding figures for new cases of destructive tuberculosis in these two years were 0.55 and 0.02%, respectively. Radiographic examinations of seamen have also shown an encouraging decline in the number of new cases of tuberculosis, from 0.80% in 1948 to 0.47% in 1949. However, tuberculosis continues to be commoner among seamen than in Norway as a whole.

ITALY

International Medical Days.—Important international meetings of physicians and surgeons were held from May 30 to June 12, 1951, in Turin, with the participation of representatives from numerous nations of Europe, from the United States, and from the South American republics.

Prof. A. M. Dogliotti, director of the Surgical Clinic of the University of Turin, was chairman of the organizing committee. In his inaugural address he discussed Luigi Rolando, the famous anatomist who held the chair of human anatomy in Turin from 1814 to 1831, the year of his death.

About 150 years ago, Rolando described the ventral funiculi of the spinal cord and discovered the fibrous structure of the white substance of the brain, anticipating by several years the work of Gall and Cloquet. His name is linked with the fissure, or sulcus centralis, with the rolandic area of the brain, the gelatinous substance of Rolando, and the tuberculum cinereum rolandi.

In the opening meeting Prof. René Leriche, member of the Collège de France, lectured on pain. He emphasized that many physicians today still consider pain as a beneficial warning from nature, eliciting a defense reaction. They suggested that, if pain did not exist, it would have to be invented. In practice most diseases, especially the severest, begin without a warning; when the pain does appear, the disease is in full development. Recent publications claim that the human body has numerous apparatuses for the perception of pain. These nervous elements are the implements of a definite sense, the defense sense of man, a term conceived by the English histologists Volhard and Weddell. Prof. Leriche objects to this view, claiming that, while pain produced in laboratories is governed by a law of adaptation, pain in disease continually increases without cessation, even when it is intermittent, and never undergoes adaptation. Besides, the disease pain seldom originates from action on the specialized receptors; when it appears, it is not normally the effect of a stimulant painful in itself. According to Leriche, the organization of a painful defense sensitivity may be conceived for the skin; however, with respect to the deep tissues it does not have a physiological object. Despite this, deep pain is experienced every day: for example, the pain of the pancreas and of the stomach certainly is not a defense warning; it is entirely subjective. There is instead a peripheral consciousness; the brain converts the electric phenomenon, using a nerve as the pathway, into the psychic factor that is sensation. An important element is represented by the fact that a pupil of Pavlov was able to transform an eminently painful electric stimulant into a pleasant sensation; some conditioned reflexes converted pain into euphoria. Pain is under the influence of the vasomotor movements, which aggravate it or control it; in some instances endocrine factors intervene in the creation of pain.

Under the chairmanship of Prof. Leriche, special meetings on cardiovascular surgery were held. Prof. Martorell, the famous heart surgeon from Barcelona, lectured on chronic edema of the lower extremities. These meetings will be reported on in additional letters.

On the occasion of the medicosurgical international meetings, the University of Turin conferred honorary degrees on six scientists of international fame: Prof. Alfred Blalock, professor of surgery in Baltimore, pioneer in heart surgery; Prof. Paul Dirac, of Cambridge University, winner of the Nobel prize; Prof. Hans Von Euler, biochemist of the University of Stockholm, Nobel prize winner; Prof. Karrer, Nobel prize winner from the University of Zurich; Prof Leriche, who advanced the concept of functional pathology; and Prof. Zondek of Hadassah University.

Also during these meetings, a university center for surgical treatment of congenital and acquired diseases of the heart and of the great vessels was dedicated in Turin. It will be under the direction of Prof. A. M. Dogliotti, director of the Surgical Clinic of the University of Turin.

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CORRESPONDENCE

AURICULAR FIBRILLATION

To the Editor:—In the Aug. 4, 1951, issue of THE JOURNAL (page 1275), Prinzmetal and his co-workers report their splendid observations on spontaneous and induced auricular fibrillation. They then say that their observations are "entirely incompatible with" the circus movement hypothesized by Lewis, so that "The conclusion is inevitable that no circus movement occurs in auricular fibrillation." Whether the conclusion is correct is one question, but I do not believe it is inevitable from their observations.

They say that "If a single excitation wave traveled around the fibrillating auricles along a roughly circular path, as hypothesized by Lewis, some type of synchronism would be present in simultaneously recorded leads from various sites on or near the circuit. . . . Furthermore, the absence of isoelectric intervals in the oscillogram indicates that the 'isoelectric gap,' which is essential to the perpetuation of the circus movement, does not exist." This argument is, I believe, not correct. With movement along a roughly circular and constantly changing path, each point of which can serve as the origin of "daughter waves," the result might well be as chaotic as observed, provided the muscle fibers vary greatly among themselves in refractory period. These fibers certainly vary in location and direction, and the resultant of all the electropotential differences is impossible to calculate; it involves the problem of Dirichlet, which has no solution at present. In the same way it is not true that "If a circus movement were present, one auricle would always contract before the other, and the number of over-all contractions of the two auricles would be the same." Some of the waves might fail to reach one or the other auricle entirely, and this in an irregular fashion; and certainly the variations in speed of conduction to the auricles might vary so that whereas they might occasionally contract simultaneously, they would often contract one before the other (but not necessarily always the same one first) and with varying differences in the onset of their contractions.

The fact that in auricular flutter there is an underlying circus movement, and that flutter and fibrillation of the auricles not too rarely merge into each other, points toward the distinct possibility that Lewis was correct in his conclusions.

ERNEST B. ZIESLER, M.D.
104 S. Michigan Ave., Chicago.

PERIODIC PARALYSIS

To the Editor:—In THE JOURNAL, Aug. 11, 1951, the reference given by Dr. Hammes to the first description of periodic paralysis in 1727, by Musgrave of London, is of some interest. I have recently had occasion to read the original as presented to the Royal Society (Musgrave, W.: A Periodical Palsy: Philosophical Transactions and Collections, to the End of the Year 1700, edited by John Lowthorp, London, 1705. Vol. 3, pp. 33-34). Dr. Musgrave saw his patient, a girl aged 21, first in August, 1687, again in July, 1688, and during the summer of 1689, but he lost track of her the next year; by 1698, when he reported her case, he had heard nothing more.

In the first attack she lost sensation, speech, and the use of her legs and paralysis developed. There was a violent cramp in one leg. In three days she could speak; later she walked on crutches. Facial pallor occurred. The attacks continued weekly, always beginning on Tuesday and ending on Saturday, with two exceptions—on one occasion the attack ended on Friday and on another on Sunday. The patient's appetite was poor, and at times she lived on bread, water, and salt. She was never unconscious. Speech was sometimes affected, after an initial paralysis of her left arm. In attacks she experienced pain in the left side, including the arm and leg. She was never able to walk steadily and always used a cane. Her mother had convulsive fits and "was extremely hysterical." On the final visit, the patient walked 20 miles to see Dr. Musgrave at Oxford. Some were of the opinion "that the young woman counterfeited." Dr. Musgrave thought "it was not in her power so to do."

There are many symptoms, as described by the observer, not consistent with a diagnosis of periodic paralysis. Sensation was affected, pain and cramps were present, and speech was frequently and often initially impaired. In spite of the periodic attacks, the diagnosis should not be either familial or sporadic periodic paralysis. Gross hysteria seems a more logical diagnosis.

Musgrave wrote his report in 1698. The original account was published in the *Philosophical Transactions of the Royal Society* (**20:**257 [July] 1698). The date given, 1727, is incorrect. Musgrave practiced in Oxford; his patient came from Stow, Gloucestershire.

HENRY R. VIETS, M.D.
20 Gloucester St., Boston.

ERYTHEMA MULTIFORME EXUDATIVUM OR STEVENS-JOHNSON SYNDROME?

To the Editor:—The editorial on erythema multiforme in the Aug. 11, 1951, issue of THE JOURNAL called attention to the rather vague nosographic boundaries of the syndrome but failed to mention a few important facts pertaining to the problem.

One of these is Soll's important contribution to the classification of the whole group of analogous maladies (*Arch. Int. Med.* **79:**475 [May] 1947). According to that classification, what is usually called Stevens-Johnson syndrome would fit into the so-called intermediate group of syndromes. Moreover, my own paper (*New York State J. Med.* **49:**198 [Jan. 15] 1949) endeavors to separate Stevens-Johnson syndrome from the "real" erythema multiforme as an independent entity.

Incidentally, in my paper I also described the rather effective use of a combined therapeutic armamentarium, including penicillin and antihistaminics. Since the date of publication of my article, I have encountered two more cases of Stevens-Johnson syndrome. One patient, a 36 year old Jewish male who was severely ill, failed to respond to any therapeutic measure and, finally, after two weeks of fever, chills and malaise, decided to "change doctors." His ultimate fate is unknown to me. Another patient, a 12 year old Puerto Rican girl with a rather mild case, responded well to penicillin and antihistaminics. May I add that the rather poorly defined nosographic frontiers that exist between Stevens-Johnson syndrome and somewhat analogous maladies are not unique or even rare phenomena in medical classification. A glance at the different forms of nephropathies, of purpuras, of anemias, of lipoidoses, of endocrinopathies—just to give a few examples—will convince the philosophically trained physician that what we usually encounter in pathology are not "water-tight" morbid entities, but rather didactically useful, though pathologically imperfect, syndromes or even concepts of syndromes.

MARDOQUEO I. SALOMON, M.D.
1450 Bryant Ave., Bronx 59, N. Y.

AXILLARY VEIN THROMBOSIS

To the Editor:—In the paper on "'Effort' Thrombosis of the Axillary Vein with Pulmonary Embolism," by Drs. Barnett and Levitt (*J. A. M. A.* **146:**1412 [Aug. 11] 1951), the impression is created that pulmonary embolism following axillary vein thrombosis has been unknown.

In the interest of accuracy I think it should be pointed out that in my book "Management of Peripheral Arterial Disease," in the chapter on "Thrombosis of the Axillary Vein" (page 308), I stated, "Pulmonary embolism from these thrombosed veins may also occur." On page 310 it is stated: "Anticoagulant therapy should be instituted. This may prevent propagation of additional clots in the veins and may also prevent pulmonary embolism."

These statements are based on my experience in a few similar cases, one of a young man, now under treatment, with axillary and subclavian vein thromboses, who has had recurrent attacks of pulmonary embolism.

SAUL S. SAMUELS, M.D.
151 E. 83rd St., New York.

MEDICAL LITERATURE ABSTRACTS

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A.M.A. Arch. Surgery, Chicago

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Nonmalignant Intrinsic Stricture of Pancreatic Duct: Report of Case. L. H. Appleby.—p. 115.

Internal Drainage of Pancreatic Cyst by Means of Roux-Y Anastomosis to Jejunum. P. A. Rosi.—p. 119.

*Sympathetic Nerve Block in Early Acute Cholecystitis. D. Eastwood and N. A. Womack.—p 128.

Sympathetic Nerve Block in Cholecystitis.—Eastwood and Womack practiced paravertebral procaine block in 14 patients with acute cholecystitis. Ten patients obtained immediate and complete relief from pain, which lasted 24 hours to several weeks. At operation one to two days after the injection, six of these patients were found to have subsiding acute cholecystitis. One patient, who had undergone cholecystectomy in another hospital several years before, was found to have a long cystic duct remnant with surrounding scar tissue enmeshing sympathetic nerve fibers. One patient with a long history of pyloric ulcer had a normal gallbladder but an inflammatory process resulting from an ulcer in the region of the hepatic plexuses. In one patient with pain and jaundice who had immediate relief from pain and rapid subsidence of the jaundice a normal gallbladder was found at operation, but there was severe hepatic degeneration with cholangitis. The jaundice in this case was interpreted as due to reflex spasm of the sphincteric mechanism of the common bile duct. In one patient who received relief, the abdomen was not explored because of marked obesity. Of the four patients who received no relief, one had multiple liver abscesses associated with typhoid with diaphragmatic and parietal wall involvement, one had a previously ruptured gallbladder with subphrenic abscess, and two were not subjected to operation, a diagnosis of psychoneurosis being established after further study.

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An asterisk (*) before a title indicates that the article is abstracted.

American Heart Journal, St. Louis

41:803-946 (June) 1951

*Radioactive Sodium (Na^{24}) in Measurement of Local Blood Flow. R. Semple, L. McDonald and R. P. Ekins.—p. 803.

Consistency of Clearance of Radioactive Sodium from Human Muscle. L. H. Wisham, R. S. Yalow and A. J. Freund.—p. 810.

Atypical Patent Ductus Arteriosus with Absence of Usual Aortic-Pulmonary Pressure Gradient and of the Characteristic Murmur. G. S. Myers, J. G. Scannell, S. M. Wyman and others.—p. 819.

Factors Regulating Pulmonary "Capillary" Pressure in Mitral Stenosis. R. Gorlin, B. M. Lewis, F. W. Haynes and others.—p. 834.

*Heart Puncture: II. Cardioangiography: Clinical and Electrocardiographic results. V. B. Núñez and E. R. Ponsdomenech.—p. 855.

Spread of Excitatory Process and the Left Ventricular Cavity Potentials in Left Bundle Branch Block as Studied with Esophageal Leads. J. Wener, L. Scherlis and A. A. Sandberg.—p. 864.

Interrelationship of Electrocardiographic Complexes Studied by Simultaneous Multiple Recording. E. Rapaport, H. R. Bierman, M. Sokolow and A. Edgar.—p. 875.

Nature of Left Axis Deviation in Congenital Cardiac Defects with Right Ventricular Hypertrophy. I. G. Kroop, M. F. Steinberg and A. Grishman.—p. 891.

Vectorcardiograms Obtained in Patients with Right Ventricular Hypertrophy Whose Electrocardiograms Display an Unusual Axis Deviation or Left Axis Deviation. R. P. Lasser and A. Grishman.—p. 901.

Measurement of Blood Flow.—It has been claimed that the rate of disappearance of radioactive sodium (Na^{24}) from muscle after its intramuscular injection is a measure of the efficacy of local tissue circulation and that this test can be used in the evaluation of peripheral vascular disorders. Results of the present study do not confirm this claim. The rate of clearance of Na^{24} from the gastrocnemius muscle was determined in 34 subjects of different ages. Thirteen of these had intermittent claudication; the others had no clinical evidence of vascular disease. The clearance rates at rest and after exercise varied widely and were not significantly different in the two groups. The authors conclude that Na^{24} clearance is not a reliable measure of blood flow. There appears to be no direct relationship between the two, although this can be established with certainty only by simultaneous direct measurement of blood flow and estimation of Na^{24} clearance.

Cardioangiography.—The injection of a radiopaque substance directly into the ventricular chambers as a means of roentgenologic visualization of the heart and great vessels was studied by the authors in 30 patients. They performed 45 cardiac punctures on these patients without mortality or serious reaction, injecting 50 cc. of 75% iodopyracet solution (diodrast®) into the right ventricle under a pressure of 25 lb. and into the left ventricle under a pressure of 30 lb. The puncture produced no symptoms in 18 patients; eight complained of slight discomfort in the upper abdomen or retrosternal region; and four reported amelioration of preexisting dyspnea and cough. There were no variations in blood pressure at the time of the puncture, but, when the iodopyracet was injected, the systolic blood pressure dropped 10 to 40 mm. of mercury in most cases. In one patient the pressure dropped to zero but rapidly returned to normal after the administration of nikethamide (coramine®) and of ephedrine. There were no fluoroscopic or auscultatory changes following the puncture. Electrocardiographic changes were minimal. Transitory ventricular extrasystoles were frequently seen at the moment of puncture of the myocardium. On four occasions immediately after the injection of iodopyracet into the right ventricle a transient right bundle branch block was observed. One patient with a preexisting posterior-wall infarction showed no variation in the electrocardiogram during or after cardioangiography. This procedure yielded clearer roentgenograms of the ventricular chambers, coronary arteries, and great vessels than those obtained when the opaque medium is introduced into a peripheral vessel. The method was of particular diagnostic value in demonstrating changes in pulmonary circulation and in the aorta, including the abdominal aorta and its branches.

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Am. J. Roentgenol, & Rad. Therapy, Springfield, Ill.

66:1-170 (July) 1951

*Clinical and Experimental Studies of Intracranial Tumors with Fluorescein Dyes with an Additional Note Concerning Possible Use of K^{42} and Iodine^{131} Tagged Human Albumin. G. E. Moore, C. M. Caudill, J. F. Marvin and others.—p. 1.
*Roentgen and Differential Diagnosis of Chronic Cor Pulmonale. M. O. Marks and H. A. Zimmerman.—p. 9.
Interpretation of Normal Cardiovascular Angiograms with Discussion of Common Errors. M. L. Sussman and S. A. Brahms.—p. 29.
New Roentgen Sign of Broncho-Extrapleural Perforation in Lucite Plombage. A. Hurst and M. A. Levine.—p. 37.
Roentgenographic Demonstration of Glass Fragments in Eye. W. E. Roberts.—p. 44.
Small Intestinal Rupture Due to Non-Penetrating Abdominal Injury: Roentgenological Study. G. Jacobson and R. A. Carter.—p. 52.
Duodenal, Ampullary and Peri-Ampullary Carcinoma with Three Case Reports. A. Sheinmel and A. Joffe.—p. 65.
Clinical Diagnosis of Arteriosclerosis in the Aged: With Particular Reference to Interpretation of Roentgen Findings. F. D. Zeman and M. Schenk.—p. 73.
Extramucosal Intramural Enteric Cyst of Esophagus: Case Report. B. D. Rosenak and H. D. Van Vactor.—p. 81.
Gastroduodenal Intussusception. R. H. Marshak, J. Lifsay and S. Brahms.—p. 87.
Massive Umbilical Hernia. A. Lewitan and W. Slade.—p. 90.
Approaches to Living Anatomy. J. O. Brown.—p. 94.
Monophen: New Medium for Oral Cholecystography. M. G. Wasch and B. S. Epstein.—p. 98.

Studies of Intracranial Tumors with Fluorescein Dyes.—In the last few years attempts have been made to utilize a unique property of central nervous system vessels (blood-brain barrier) for the diagnosis and localization of brain tumors. It has been found that most positively charged (basic) dyes penetrate into the central nervous system, while negatively charged dyes (acidic) are generally incapable of passing into the brain tissue. Under certain pathological conditions this barrier is broken down locally. In the presence of a tumor or abscess an acid dye will easily penetrate into the area of the lesion but not into the surrounding normal brain substance. The acid-chromogen dye sodium fluorescein has proved most useful, since low tissue concentrations can be readily detected because of the highly fluorescent properties of the dye under ultraviolet light. At the Department of Surgery of the University of Minnesota Medical School fluorescein dyes were used routinely for craniotomies in which a brain tumor was suspected. The surgeon hands the biopsy material suspected of containing tumor tissue to the nurse, who in turn holds the tissue under the ultraviolet lamp. In the laboratory the fluorescein test has been used for the evaluation of brain damage following injection of noxious agents. Most interesting are changes seen after intra-arterial injection of radiopaque media commonly used to perform cerebral angiograms. Rabbits were injected intra-arterially with iodopyracet injection (diodrast®), and later fluorescein was administered intravenously. Some brains revealed under ultraviolet light an intensely fluorescent hemisphere on the side of the injection indicative of a broken blood-brain barrier. The authors discuss the use of radioactive diiodofluorescein and the Geiger-Müller counter in the preoperative localization of brain tumors. The method has been used to localize brain tumors preoperatively, but it did not prove to be sufficiently accurate to be used as the sole diagnostic test. Two other radioactive agents investigated were radioactive potassium (K^{42}) and iodinated (I^{131}) human albumin. The value of these agents is discussed. Improved instrumentation, such as the adaptation of scintillation counters to clinical use, should increase the validity of the radioactive dye test.

Diagnosis of Chronic Cor Pulmonale.—Marks and Zimmerman present the second of three reports on chronic cor pulmonale prepared at the Cleveland City Hospital. The first report attempted to correlate the clinical and the autopsy findings. The present report deals with the roentgen findings and the differential diagnosis. The third paper will deal with the physiological findings on patients studied by cardiac catheterization. A recent report indicated that in only nine of 39 patients with chronic cor pulmonale was a correct diagnosis made by a roentgenologic study. Analysis of the reasons for failure suggests that diagnosis of cor pulmonale is easily missed because: 1. The patient is frequently very ill when admitted, and roentgenoscopic examination cannot be done satisfactorily. 2. Roentgenograms in both oblique and posteroanterior projections are not taken. 3. Extensive pulmonary disease may obscure the cardiac outline in all projections. For a diagnosis of cor pulmonale, selective enlargement of the pulmonary conus and artery, with or without hypertrophy of the body of the right ventricle, must be shown. Pulmonary emphysema is almost always a demonstrable feature. Careful correlation of the clinical catheterization and roentgen findings are necessary to exclude other causes of an enlarged pulmonary conus and artery. These conditions are certain forms of congenital heart disease, such as interatrial septal defect, Lutembacher's syndrome, high interventricular septal defect, patent ductus arteriosus, Eisenmenger's complex, and pulmonic stenosis, and also mitral stenosis, thyroid heart disease, cardiac failure, aneurysm of the pulmonary artery, kyphoscoliosis, Ayerza's disease, and idiopathic dilatation of the pulmonary artery.

American Journal of Surgery, New York

82:1-182 (July) 1951. **Partial Index**

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Failures in Screw Fixation. H. C. Fett, C. C. Pool and S. C. E. Clayton.—p. 55.
*Experiences with Operative Correction of Portal Hypertension. F. Berbode and E. Holman.—p. 58.
Chronic Non-Specific Thyroiditis. E. Goetsch.—p. 71.
Stereoscopic Radiography in Diagnosis of Anorectal Fistula. L. J. Hirschman.—p. 83.
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Surgical Treatment of Funnel Sternum. G. Murray.—p. 144.
Relation of Hormones to Female Genital Cancer. E. Novak.—p. 149.
Prevesical Prostatectomy. C. R. O'Crowley and A. R. Fernicola.—p. 152.
Manchester Operation of Colporrhaphy in Treatment of Uterine Prolapse. L. E. Phaneuf.—p. 156.

Operative Correction of Portal Hypertension.—Nine of the 16 patients with portal hypertension reported on by the authors had cirrhosis of the liver, and came for treatment because of gastrointestinal hemorrhage and ascites. Four of the nine were not benefited by surgical treatment and died either postoperatively or within five months. Portacaval or splenorenal shunts prevented hemorrhage and ascites in four patients for one to two years. One patient has no ascites 10 years after ligation of the splenic artery, with splenopexy and omentopexy. Seven patients with portal hypertension had a normal liver and were treated for gastrointestinal hemorrhage alone. There were no fatalities in this group. Four of these patients had had a previous splenectomy with temporary or no benefit. Portacaval or splenorenal shunts were performed in four patients, with no recurrence of hemorrhage for one year. One patient remained well for three and a half years following ligation of the splenic artery and splenopexy. A patient with a previous splenectomy had no further hemorrhages during the four years following division of numerous varices and omentopexy. It is suggested that ligation of the splenic artery be combined with a direct portacaval shunt to reduce the volume of blood carried by the portal system. Enlarged lymphatic vessels paralleling the portal vein were observed in every case with ascites and cirrhosis. They are probably related to the increased lymph flow from the portal vein capillaries into the surrounding lymph spaces incident to the portal hypertension. The surgical approach recommended for portacaval anastomosis is through a subcostal incision, with vertical extensions at both ends and excision of the costal cartilage opposite the fifth interspace, permitting lateral displacement of the costal margin and lateral rotation of the liver following division of the round ligament.

American Surgeon, Atlanta, Ga.

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Tumors and Cysts of Neck. A. S. Jackson.—p. 471.
Aneurysm of Subclavian Artery Associated with Cervical Rib: Report of Two Cases. R. L. Imler Jr., R. A. Hayne and A. Stowell.—p. 478.
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Internal Pin Fixation for Fracture of Clavicle. T. O. Moore.—p. 580.
Spontaneous Perforation of Esophagus. T. J. Kinsella.—p. 584.
*Does Removal of Gallbladder Produce Functional Changes of Sphincter of Oddi and of Choledochus? N. F. Hicken, A. J. McAllister, B. J. Franz and E. Crowder.—p. 598.
*Occurrence of Massive Generalized Wound Bleeding During Operation: With Reference to Possible Role of Blood Transfusions in Its Etiology. S. R. Friesen and R. M. Nelson.—p. 609.
Ampulla of Vater and Pancreatitis. J. B. Floyd Jr. and J. F. Van Meter. p. 623.
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Retroperitoneal Tumors. F. M. Lingenfelter and R. B. Howard.—p. 632.
Diaphragmatic Hernia in Newborn. C. C. Blackwell.—p. 638.
Prophylactic Lumbar Sympathectomy in Arteriosclerotic Peripheral Vascular Disease. J. P. Woodhall and O. Creech II.—p. 649.
Study of Exfoliated Cells as Adjunct in Diagnosis. W. A. Grosjean. —p. 655.
Measures to Combat Menace of Cancer. W. H. Cole.—p. 660.

Removal of Gallbladder.—It has been maintained that the sphincter of Oddi becomes atonic and that the common bile duct undergoes a compensatory dilatation following extirpation of the gallbladder. It was also believed that, if these changes do occur, they are initiated by pathological processes rather than by the removal of the gallbladder. Cholangiographic and manometric studies performed on 50 patients before cholecystectomy was done indicated that the pressure within the extrahepatic biliary system is governed by the secretory pressure of the liver and the resistance offered by the sphincter of Oddi. When the sphincter contracts, the ampullary orifice of the common bile duct is closed and the choledochal bile is forced into the gallbladder. Evacuation of the bile occurs when the sphincter of Oddi relaxes and the gallbladder contracts. The phase of sphincteric relaxation occurs at regular intervals and permits the bile to escape into the duodenum in rhythmic spurts. No muscular movements, undulations or changes in the size, shape, or contour of the choledochus were observed; thus apparently bile ducts do not empty by peristaltic action. Comparison of operative and postoperative manometric studies demonstrated that the sphincteric "break" occurred at the same levels in the anesthetized and nonanesthetized groups. In studying the same patients after the removal of the gallbladder it was found that the common bile duct does not undergo a compensatory enlargement following the removal of the gallbladder. Analysis of 1,700 cholangiograms of patients subjected to cholecystectomy failed to show dilatation of bile ducts unless some organic ductal obstruction was present. Cholangiographic and manometric studies indicate that the spasmogenic drugs, such as morphine sulfate, demerol, dolophine, and codeine sulfate, increase the tonal contractions of the sphincter of Oddi in both the patients having undergone cholecystectomy and those not operated on. The spasmolytic drugs, such as nitrites, aminophylline, diphenylacetyl diethylaminoethanol (trasentine®) hydrochloride, and papaverine, all cause the sphincter of Oddi to relax, but these effects are fleeting, as the intraductal pressures returned to normal within three minutes after administration of the nitrites and within 20 minutes after aminophylline. Spasmogenic drugs, such as morphine sulfate, are more effective in relieving the pains of biliary colic than are the spasmolytic agents typified by the nitrites.

Wound Bleeding During Operation: Role of Blood Transfusions.—When there is bleeding in the form of a massive generalized "ooze" from all cut surfaces of the operative wound, uncontrollable exsanguination and death may result. The bleeding begins insidiously, usually during or immediately after operation, and proves refractory to all methods of hemostasis. Of seven patients described, two were saved only because the surgical wounds allowed mechanical hemostasis by open packing. All patients had received previous transfusions of whole blood, with known previous untoward reactions in four. Clinical signs of transfusion reactions were sudden elevation of temperature, urticaria and jaundice, and sudden shock out of proportion to blood loss. Laboratory evidence of hemolysis was present in four patients, with subsequent renal injury in one. Determinations of subgroup differences other than major Rh factors were not done in any of the cases. The possibility that shock and toxicity of anesthetic agents might play a part was considered, but most of the evidence incriminated blood transfusion reactions of hemolytic type. Appreciably reduced platelets in three patients may have played a part in the blood dyscrasia. Therapy was directed to all possible defects in the clotting mechanism, but without much effect. Five of the seven cases occurred in a six months' period, three within the same month. Investigations on technical matching and handling of blood have not been informative.

Annals of Internal Medicine, Lancaster, Pa.

34:1311-1578 (June) 1951

Integrative Action of Endocrine System. J. H. Means.—p. 1311.
Treatment of Obesity with Anorexigenic Drug. E. Roberts.—p. 1324.
*Gastric Acidity Before and After Development of Gastric Cancer: Its Etiologic, Diagnostic and Prognostic Significance. M. W. Comfort. —p. 1331.
*Maintenance Dose and Toxicity of Digitoxin. R. W. Moody.—p. 1349.
Value of Functional Tests for Diagnosis of Disease of Pancreas. M. M. Nothman.—p. 1358.
Results of Splenectomy in Banti's Syndrome. R. H. Durham.—p. 1372.
*Insulin and Carotid Sinus. I. Rudnikoff.—p. 1382.
Evaluation of Rigid Dietary Sodium Restriction in Management of Ascites in Cirrhosis of Liver. C. R. Lowe and D. C. Overy.—p. 1396.
Nitrogen Balance Studies in Laennec's Cirrhosis of Liver. W. R. Cook and H. A. Van Auken.—p. 1404.
Body Weight Versus Weight Standards in Coronary Artery Disease and Healthy Group. S. M. Garn, M. M. Gertler, S. A. Levine and P. D. White.—p. 1416.
Serum Uric Acid in Relation to Age and Physique in Health and in Coronary Heart Disease. M. M. Gertler, S. M. Garn and S. A. Levine. —p. 1421.
Treatment of Amebiasis with Atabrine Combined with Carbarsone. R. A. Radke.—p. 1432.
Acromegaly and Heart: Clinical and Pathologic Study. M. R. Hejtmancik, J. Y. Bradfield Jr. and G. R. Herrmann.—p. 1445.
Some Reflections on Medical Education. W. S. Middleton.—p. 1457.

Gastric Acidity Before and After Gastric Cancer.—Gastric acidity is subnormal in persons with gastric cancer. The percentage of achlorhydria is about three times as great and mean free acidity is about 13 clinical units less than the standard in normal persons of the same sex and age. The range of gastric acidity in gastric cancer is not greatly different from that of normal persons. The degree of subnormality of gastric acidity in gastric cancer varies with sex, age, resectability, symptomatology, and size of the cancer. A major part of subnormality of mean gastric secretory activity appears before gastric cancer develops. Mean gastric secretory activity of the pregastric cancer patient is subnormal regardless of the decade of life in which the test meal is performed and as long as 20 to 25 years before cancer develops. This subnormality in gastric cancer is progressive and selective. Evidence now tends to support the hypothesis that atrophy of the gastric mucous membrane plays an important part in the depression of mean gastric secretory activity before the development of cancer and that the atrophic gastric mucosa is a soil in which gastric cancer frequently develops. Values for free gastric acidity have a definite but limited clinical application in the gastric cancer problem. Their practical value as a mechanism for screening the persons in whom gastric cancer is most likely to develop awaits further study and application. These values will not enable one to distinguish with certainty between benign and malignant gastric lesions, but in the management of small ulcerating gastric lesions the

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degree of free acidity of the gastric contents, without reference to other clinical, roentgenologic, and laboratory data, gives valuable information about the relative chances of malignancy and of the relative danger of even a temporary trial of medical treatment. As a prognostic device, the degree of free acidity in a case of gastric cancer may offer some encouragement to patients with high acidity, for the higher the secretory activity of the cancerous stomach the better the chances of a five-year survival.

Maintenance Dose and Toxicity of Digitoxin.—Ninety-five male patients and 76 female patients were given digitoxin in the Colorado General Hospital Outpatient Heart Clinic. All patients have been compensated and maintained at what was felt to be an optimal level of digitalization for periods varying from two months to two years. Results showed that the maintenance dose of digitoxin is between 0.05 and 0.2 mg. per day, with rare exceptions. Because as many as one-fourth of the patients may be maintained on 0.05 mg. daily, such a tablet should be available. Age, sex, and weight have little if any effect on the maintenance dose of digitoxin, although patients weighing over 180 lb. (81.6 kg.) may require slightly larger dosage. Digitoxin has the advantage of standardization by weight and of nearly complete absorption of an oral dose. The drug has the disadvantages of very slow dissipation. The tendency of inexperienced persons is to overdigitalize gradually, over a period of a few weeks. This effect may be easily overcome by frequent and careful observation of the patient. Toxic effects may persist as long as a week after discontinuance of the drug. Of 43 patients with toxic effects of the drug, 23 complained of symptoms of digitalis toxicity and 23 showed signs of digitalis toxicity. Only three patients showed both simultaneously. Digitoxin may occasionally be given for as long as two months before toxic symptoms are manifested. It appears probable that with digitoxin toxic signs frequently appear before symptoms. If this is true, close supervision becomes even more imperative.

Insulin and the Carotid Sinus.—Five men and five women between the ages of 21 and 63 with diabetes mellitus were studied to determine the effects of insulin on the carotid sinus reflex. A fasting blood sugar test and electrocardiogram were taken with the patient in a semireclining position. The right and left carotid sinuses were each stimulated for 15 to 25 seconds by simple finger pressure and massage, and lead 2 was taken during this procedure. The patients were then given unmodified insulin, the doses depending on the fasting blood sugar level. At one, two and three hours after insulin was given, venous blood was drawn and analyzed for glucose. Lead 2 was then recorded before and during right and left carotid sinus pressure. Changes in the heart rate and blood pressure, the presence or absence of dizziness and related symptoms, and the production of syncope were noted during all phases of the study. While cardioinhibitory effects of varying degrees were obtained in nine of the 10 patients before insulin was given, more decisive and greater reductions in heart rate were recorded one, two, and three hours after the administration of insulin. Pronounced effects were produced after insulin administration in the patient aged 21 and in four between the ages of 40 and 45 as readily as in those of the sixth and seventh decades. There was no appreciable difference in the behavior of either sex. Dizziness was elicited by carotid sinus pressure in nine patients one hour after insulin was given and in 10 patients two to three hours after they received insulin. No relationship existed between the blood sugar levels (hypoglycemia) and the extent of carotid sinus response. One patient lost consciousness and had muscular twitchings before receiving insulin. Five patients became unconscious one hour after receiving insulin, and eight became unconscious two to three hours after administration of the drug. One of these cases of syncope was the result of a purely vasodepressor response, while the others were all associated with striking reductions in heart rate. These studies showed that in patients with diabetes mellitus insulin increases the activity of the carotid sinus reflex and is capable of stimulating the cardiac vagus at nonhypoglycemic levels. The hypoglycemic effect of insulin was eliminated by the use of comparatively small doses of the hormone and by the administration of dextrose whenever blood sugar levels fell below 80 mg. In three of the patients, in whom both syncopal and cardioinhibitory effects were observed, atropine and its derivatives were used with insulin and were effective in eliminating these symptoms. Withdrawal of the insulin in two patients yielded the same beneficial results. In patients with diabetes who have reactions apparently due to insulin shock, the author believes that determination of blood sugar levels would often show normal or elevated amounts. He contends that some of these occurrences are actually vagal effects similar to those seen in carotid sinus syndromes.

Arizona Medicine, Phoenix

8:1-80 (June) 1951

Tularemia with Report of Six Cases. A. J. Fillmore.—p. 27.
Rheumatoid Spondylitis. S. K. Conner.—p. 33.
Occupational Diseases of Chest. R. T. Johnstone.—p. 38.

Arkansas Medical Society Journal, Fort Smith

48:43-68 (July) 1951

Present Status of ACTH and Cortisone Therapy in Allergic Diseases. T. G. Johnston.—p. 43.
Treatment of Tinnitus with Parenteral Vitamin A: Preliminary Report. L. K. Hundley.—p. 49.
Large Ovarian Cyst: Report of Case. R. L. Salb and E. C. Gresham. —p. 51.
Translumbar Aortography: Its Value in Diagnosis, Management and Prognosis of Renal Pathology. W. Reagan.—p. 53.

Blood, New York

6:585-684 (July) 1951

Improved Technic of Bone Marrow Aspiration. S. Propp.—p. 585.
Semi-Quantitative Study of Bone Marrow in Rats Following Total Body X-Irradiation. R. L. Rosenthal, B. I. Pickering and L. Goldschmidt. —p. 600.
Tissue Mast Cells in Human Bone Marrow. R. S. Fadem.—p. 614.
Pernicious Anemia in Asiatic Indians. C. R. Das Gupta and J. B. Chatterjea.—p. 631.
Study of Blood Volume and Anemia in Cancer Patients. J. C. Bateman. —p. 639.
Effect of Urethane (Ethyl Carbamate) on Mitotic Activity in Bone Marrow of Normal Mice. A. Rosin.—p. 652.
Dilution of Blood Plasma by Calcium-Combining Anticoagulants. A. R. Adams and W. A. Mosher.—p. 661.

Bulletin of Johns Hopkins Hospital, Baltimore

89:1-52 (July) 1951

Diuretic Activity of Compounds Related to Xanthines, Uracils and Triazines as Determined in Dogs. A. A. Kattus, E. V. Newman and J. Franklin.—p. 1.
Histochemical Studies on Cartilage and Bone: II. Ascorbic Acid Deficiency. R. H. Follis Jr.—p. 9.
Associated Movements Between Limb and Respiratory Muscles as Sequel to Brachial Plexus Birth Injury. P. K. Robinson.—p. 21.
*Use of Terramycin in Rocky Mountain Spotted Fever. A. M. Powell, M. J. Snyder, J. V. Minor Jr. and others.—p. 30.

Terramycin in Rocky Mountain Spotted Fever.—The diagnosis of Rocky Mountain spotted fever in the seven cases reported was based on headache, typical rash and fever, and on laboratory findings. Four of the patients were children of from 3 to 12 years of age; three were adults. Terramycin was administered in initial doses of approximately 50 mg. per kilogram of body weight. In adults, approximately 3.0 gm. was given initially, followed by doses of 1.0 gm. every eight hours. Children received approximately two-thirds of the adult dose. Therapy was continued until the temperature reached normal levels, provided defervesence was accompanied by clinical improvement. In six of seven patients treated there was a striking abatement of the clinical symptoms within 48 hours and signs of illness disappeared within 72 hours. One adult patient failed to show significant improvement after two days of oral treatment with terramycin, probably because he failed to attain a satisfactory level of antibiotic in the blood owing to faulty absorption from the gastrointestinal tract. Intravenous administration of chloramphenicol resulted in a high concentration of antibiotic, and recovery ensued. Conceivably, a comparable form of terramycin would have been equally effective. Terramycin hydrochloride suitable for intravenous use is now avail-

able. The oral administration of terramycin caused mild gastrointestinal disturbances, which, however, did not necessitate interruption of treatment. The results obtained with terramycin in Rocky Mountain spotted fever compare favorably with those derived from chloramphenicol and aureomycin. Seriously ill patients should also receive transfusions.

Bulletin of the Los Angeles Neurological Society

16:213-254 (June) 1951

Epilepsy in Mythology, Legend and Folk Tale. C. B. Courville.—p. 213.
Formation and Absorption of Fluid in Spinal Subarachnoid Space in Man: Report of Case. E. B. Boldrey, B. V. A. Low-Beer, W. E. Stern and J. Adams.—p. 225.
Bilateral Lesions of Anterior Cingulate Gyri: Report of Case. J. M. Nielsen and L. L. Jacobs.—p. 231.
Anterior Cingulate Gyrus and Corpus Callosum. J. M. Nielsen.—p. 235.
Spinal (Lumbosacral) Epidermoid Tumor, Pilonidal Sinus, and Persistent Meningitis: Report of Case with Recovery. E. G. Forgrave and K. H. Abbott.—p. 244.
Gunshot Wound of Abdomen and Lumbar Spine Rendered Less Complicated by Spina Bifida Occulta. J. S. Mense and T. A. Gibson.—p. 248.
Autonomic Phenomenon Noted During Cerebral Angiography. M. D. Heifetz.—p. 251.

California Medicine, San Francisco

74:413-450 (June) 1951

Effective Treatment of Socialistic Hypertension. D. Cass.—p. 413.
*Results of Long-Continued Cortisone Administration in Rheumatoid Arthritis. E. W. Boland and N. E. Headley.—p. 416.
Problems in Intramedullary Nailing of Femural Fractures. R. Sotto-Hall and N. P. McCloy.—p. 424.
Chronic Urticaria Following Penicillin Therapy. E. Epstein.—p. 429.
Prophylactic Psychotherapy Before Desexualizing Operation. L. B. Boyer. —p. 431.
Simple Retentive Dressing for Fractures of Clavicle. J. T. Leland. —p. 432.

75:1-72 (July) 1951

SYMPOSIUM ON CORTISONE AND ACTH

Experiences with Cortisone Given Orally. E. P. Engleman, P. Kunkel, J. E. Welsh Jr. and M. G. Molyneaux.—p. 1.
Experience with Cortisone and ACTH in Private Clinic. M. A. Krupp, M. Saier, F. Keddie and others.—p. 6.
Experience with ACTH and Cortisone in Private Practice. A. Rowe Jr., G. R. Lamb, F. B. Taylor and L. W. Kinsell.—p. 11.
Use of Rocking Bed to Augment Ventilation in Patients with Poliomyelitis. C. W. Dail, E. Austin, O. L. Hussleston and A. G. Bower. p. 15.
Trisethylene-Imio-s-Triazine (Triethylene Melamine or TEM) in Treatment of Neoplastic Diseases. M. B. Shimkin, H. R. Bierman, K. H. Kelly and others.—p. 26.
Attitudes Toward Dubious Compensation Claim. C. Leggo.—p. 35.

Long-Continued Use of Cortisone.—Administration of cortisone acetate to patients with rheumatoid arthritis usually suppresses the disease manifestations, but relapse ensues after withdrawal. For sustained improvement cortisone must be given more or less continuously. The improvement that results from cortisone administration does not represent a correction of a glandular deficiency by substitution therapy but rather a favorable effect from an induced state of hormonal excess. Hyperadrenocortical effects with such unwanted signs as disturbances in electrolyte, water, and carbohydrate metabolism; skin changes, such as hypertrichosis, acneform eruption, pigmentation, and striae; abnormal fat deposition; menstrual disorders; mental changes; and retardation of wound healing may develop. Seventy-six patients with rheumatoid arthritis were given cortisone. It was necessary to discontinue treatment in 16 of these before six months. The remaining 60 patients received the hormone uninterruptedly for six to 15 months. Initial suppressive doses were given until the clinical manifestations were brought under control. For severe and moderately severe cases 200 or 300 mg. of the hormone was administered on the first day, followed thereafter by daily injections of 100 mg.; for moderate and mild cases, 100 mg. was given on the first and subsequent days. When rheumatic activity had been suppressed, reductions were made by 5 to 10 mg. per dose at intervals of every five to seven days. The smallest daily amount of cortisone required to maintain adequate, although not necessarily absolute, control was considered as the maintenance dose, which was then continued, with adjustments in the daily amounts being made from time to time as changes in the clinical response or as the development of objectionable reactions dictated. It was found more prudent to be content with improvement short of adverse effects rather than to strive for total suppression with unsafe doses. The ability to sustain satisfactory improvement usually varied indirectly with the severity of the rheumatoid arthritis. Unwanted signs of hormonal excess developed in 40% of cases at some time during the treatment. Most of them disappeared or lessened when the dose of cortisone was reduced, but, when this was done, the improvement often also declined. Evidence of functional suppression of the adrenal cortices, as indicated by a decreased response of circulating eosinophils to exogenous corticotrophin, was present during prolonged cortisone therapy. The depression was temporary. Whether irreversible damage may result when the drug is employed for longer periods cannot yet be determined.

Connecticut State Medical Journal, Hartford

15:467-564 (June) 1951

Roentgen Demonstration of Ascaris Lumbricoides in Alimentary Tract. R. M. Lowman, C. Grant and D. A. Losasso.—p. 467.
Training of Attendant and Nursing Personnel. D. G. Wright.—p. 470.
Congenital Hemolytic Disease Due to ABO Incompatibility. R. W. Provenzano.—p. 476.
Antihistamines in Chronic Asthma. L. S. Wolfe.—p. 478.
Pericarditis Complicating Meningococcic Infection in Case Treated with Sulfadiazine. H. Lipton.—p. 480.
Objectives of American Heart Association and Its Affiliates. C. A. R. Connor.—p. 484.
Community Hospital Low-Cost Laboratory and X-Ray Diagnostic Service Plan for Ambulatory Patient. P. D. Rosahn.—p. 487.

Delaware State Medical Journal, Wilmington

23:137-164 (June) 1951

Coronary Artery Disease. W. D. Stroud.—p. 137.
Anticoagulant Therapy in Acute Myocardial Infarction, Venous Thrombosis and Pulmonary Embolism. J. B. VanderVeer.—p. 145.
Rehabilitation Following Acute Myocardial Infarction. W. G. Leaman Jr.—p. 154.

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Diseases of Chest, Chicago

20:1-110 (July) 1951

*Tibione in Treatment of Tuberculosis Activity, Dosage and Toxic Manifestations. S. H. Belgorod, H. Alexander, C. E. Meidt and J. McGaley. —p. 1.
New Antibiotics in Treatment of Tuberculosis. I. F. Volini, E. R. Kadison and O. Felsenfeld.—p. 19.
Suggestions for Diagnostic Study of Patient with Abnormal X-Ray Shadow of Chest. J. F. Briggs.—p. 24.
Aortic Deformity Simulating Mediastinal Tumor: Subclinical Form of Coarctation. C. R. Souders, C. M. Pearson and H. D. Adams.—p. 35.
Study of Pulmonary Circulation in Man. H. A. Zimmerman.—p. 46.
Bronchiogenic Carcinoma Masquerading as Other Diseases: Review of 200 Cases. J. K. Poppe.—p. 75.
Amebic Lung Abscess. B. H. Sullivan Jr. and F. N. Bailey.—p. 84.
Pulmonary Decortication. F. Bortone.—p. 97.

Amithiozone in Tuberculosis.—Seventy-five patients with moderately and far-advanced pulmonary tuberculosis were treated with amithiozone (tibione*) or with amithiozone and streptomycin and/or paraaminosalicylic acid for six to 10 months. Anemia, leucopenia, and granulocytopenia occurred in one patient who received 300 mg. of amithiozone daily. This hematological crisis was controlled within a period of 12 days after amithiozone was discontinued and intensive measures for restitution of the blood level were instituted. The same patient then was given 150 mg. of amithiozone daily for 11 months without ill effect. In daily dosage of 150 mg. or less, amithiozone is a safe drug when administered under medical supervision and with adequate laboratory facilities. It may be administered for long periods of time. With a daily dose of 150 mg. of amithiozone half of the authors' patients had a mild to moderate fall in hemoglobin and red blood cell count, and varying degrees of depression of the leucocytes were observed in all patients. But these alterations were transitory, and there was a return to normal with continued medication. Of the 75 patients, some degree of eosinophilia, usually transitory, developed in 68, and of these 31 received no streptomycin. The sedimentation rates failed to conform with improvement or progression of the disease. Pretreatment total serum proteins and albumin and globulin deter-

minations revealed hyperproteinemia and hyperglobulinemia in patients with long-standing disease. Results of liver function tests performed within two to six weeks after the start of therapy showed that amithiozone heightens or maintains the hyperproteinemia and hyperglobulinemia. Cephalin flocculation tests revealed after 48 hours a 2+ flocculation in six patients and a 3+ flocculation in three patients receiving amithiozone therapy. These results proved reversible in some of the patients with continued medication. In three patients moderate degrees of icterus developed in association with slight to moderate hepatomegaly and anorexia, but this reaction to amithiozone was reversible, and the drug may be resumed when the condition has subsided. In 26 patients amithiozone caused gastrointestinal disturbances of mild to severe intensity, which disappeared when the drug was discontinued and were less likely to recur when administration of amithiozone was resumed. Although it is too early to make a definite statement as to the therapeutic efficacy of amithiozone alone or in conjunction with streptomycin and/or paraaminosalicylic acid, it can be stated that conversion of sputum and clinical improvement was noted. Combinations of amithiozone with streptomycin and of amithiozone, streptomycin, and paraaminosalicylic acid seem to show greater clinical promise than any one of these substances used alone.

Endocrinology, Springfield, Ill.

48:489-642 (May) 1951. **Partial Index**

Effect of Adrenal Stimulation with Adrenocorticotrophic Hormone on Excretion of Dehydroisoandrosterone in Man. R. L. Landau, K. Knowlton, K. Lugibihl and A. T. Kenyon.—p. 489.
Determination of Urinary Dehydroisoandrosterone in Normal Men and Women and in Adrenal Disease. R. L. Landau, K. Knowlton, K. Lugibihl and P. L. Munson.—p. 506.
Effect of Adreno-Cortical Extracts on Bone Marrow Eosinophiles of Mice. M. L. Durgin and R. K. Meyer.—p. 518.
Parathyroid Control of Serum Calcium Independent of Renal Mediation. G. S. Stewart and H. F. Bowen.—p. 568.
Effect of Acute and Chronic Desoxycorticosterone Acetate Pretreatment on Pituitary-Adrenal Response to Stress. C. E. Hall, J. C. Finerty, O. Hall and M. Hess.—p. 591.
Growth-Inhibiting Effect of Cortisone Acetate on Chick Embryo. D. A. Karnofsky, L. P. Ridgway and P. A. Patterson.—p. 596.

Gastroenterology, Baltimore

18:165-338 (June) 1951

Gastric Diverticulum: Diagnosis and Indications for Surgical Excision. M. L. Tracey and B. P. Colcock.—p. 165.
*Relationship of Chronic Ulcerative Colitis to Carcinoma. A. S. Lyons and J. H. Garlock.—p. 170.
*Failure of Cortisone in Chronic Ulcerative Disease of Large and Small Bowel. M. H. Redish.—p. 179.
Studies in Pancreatic Function: IV. Use of Secretion Test in Diagnosis of Tumors in and About Pancreas. D. A. Dreiling.—p. 184.
Effect of Banthine on Disappearance Time of Duodenal Ulcer Craters. A. A. Hall, C. J. Hornisher and R. E. Weeks.—p. 197.
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Interrelationship of Blood and Urine Diastase During Transient Acute Pancreatitis A. Dankner and C. J. Heifetz.—p. 207.
Effect of Methantheline Bromide (Banthine) on Insulin Induced Secretion of Gastric Acid, Mucoproteose and Mucoprotein: Physiologic Implications. K. Plummer, J. O. Burke and S. C. Bradford.—p. 218.
Comparative Study of Ascorbic Acid Levels in Gastric Secretion, Blood, Urine and Saliva. J. T. Freeman and R. Hafkesbring.—p. 224.
Effect of Vagotomy on Glucose Tolerance of Patients with Peptic Ulceration. J. E. Kesterson, L. C. Powell and R. S. McCleery.—p. 230.
Significance of Bile to Proteolysis. L. K. Christensen.—p. 235.
Relation Between Urogastrone and Chorionganodotropin—Effect of Chorionganodotropin upon Gastric Secretion. J. Tomenius and F. Paulsen.—p. 244.
Effect of Histamine Desensitization on Histamine Induced Gastric Secretion of Guinea Pigs. J. L. Ambrus, C. M. Ambrus and J. W. E. Harrisson.—p. 249.
Action of Spices on Acid Gastric Secretion on Appetite and on Caloric Intake. E. Sanchez-Palomera.—p. 254.
Concept of Mucous Barrier and Its Significance: II. Changes in Gastric Mucosa Produced by Local Actions of Spices and Other Irritative Agents. E. Sanchez-Palomera.—p. 269.

Chronic Ulcerative Colitis and Carcinoma.—Carcinoma of the colon or the rectum developed in the course of long-standing and advanced chronic ulcerative colitis in nine patients. These patients were among 226 surgically treated cases of ulcerative colitis—an incidence of 3.9%. Seven of the nine had the carcinoma in the rectum, two in the transverse colon. The seven rectal carcinomas were removed in the course of an operation for ulcerative colitis and were discovered only at operation or on examination of the surgical specimen. The transverse colon carcinomas were proved by surgical biopsy in one case and by autopsy in another. These patients had chronic ulcerative colitis for 13 to 25 years. Eight of the nine patients died within three years after the discovery of malignancy. The one surviving patient is in excellent condition five years after an abdominoperineal resection, but she has had two metastatic carcinomatous nodules removed from the vaginal mucosa in the past two years. Most, but by no means all, of the previous reports on the relationship between chronic ulcerative colitis and carcinoma indicate that carcinoma develops oftener in patients with ulcerative colitis and at a younger age than in the general population. The polyposis occurring as a complication of ulcerative colitis is considered by many to represent true adenomas that are precursors of carcinoma. Some observers deny the increased incidence or any causal relationship between ulcerative colitis and carcinoma. Although final proof is not available, evidence is mounting that long-standing, severe ulcerative colitis is related to the occurrence of malignant change.

Cortisone in Chronic Ulcerative Disease of Bowel.—At the Brooklyn Veterans Administration Hospital, seven patients with proved ulcerative disease of the large and small bowel were given cortisone. Most of the patients were given 50 mg. of cortisone twice a day for 10 days. In some of the patients a second series of cortisone treatments was given. Proctoscopic and roentgenologic studies were made before and after the cortisone therapy. Studies of blood electrolytes (sodium and potassium), glucose tolerance curves, and Thorn eosinophil response tests were done in each case. In one patient there was a return to normal of the diffuse pattern of altered function of the small intestine. A patient with joint symptoms showed a temporary response to cortisone therapy. There was no evidence of alteration in the basic electrolytic pattern of the serum; no clinical evidences of hyperadrenalism appeared, nor were there any symptoms of adrenal exhaustion after completion of treatment. All patients showed normal adrenal response in terms of the Thorn eosinophil test. There was no evidence of beneficial effects on the ulcerative lesions of the large or small bowel with cortisone therapy.

GP (J. Am. Acad. Gen. Practice), Kansas City, Mo.

4:1-176 (July) 1951

Bites and Stings. D. G. Miller Jr.—p. 35.
Scabies. N. Tobias.—p. 43.
Drug Reactions. N. Flaxman.—p. 47.
Plaster of Paris Casts for Extremities. T. B. Quigley.—p. 51.
Low-Grade Fever. W. C. Alvarez.—p. 61.
Acute Poliomyelitis. A. F. Abt.—p. 63.
Use of Insulin Preparations. A. R. Colwell.—p. 68.

Iowa State Medical Society Journal, Des Moines

41:245-340 (July) 1951

Shortcomings in Puerperal Care. N. F. Miller.—p. 245.
*Incidence of Toxoplasmosis Among Pregnant Women in Iowa. V. M. Stuermer, R. J. Stein and J. H. Randall.—p. 248.
Cesarean Sections in Iowa in 1949. M. M. Donnelly.—p. 252.
Congenital Dermoid Cysts of Nasal Dorsum. R. G. Randall.—p. 257.

Toxoplasmosis in Pregnant Women.—During a short period in 1949 and 1950, 152 pregnant women, aged 23.5 on an average, admitted to the maternity service at the State University of Iowa, were tested for toxoplasmosis, with the skin, neutralizing antibody, complement fixation, and methylene dye reduction tests. Careful obstetric histories were taken. About half the group was nulliparous at the time of testing, but most of the patients were delivered during the period of hospitalization and observation. Of the 152 women, eight gave positive reactions to the tests, showing an incidence of subclinical toxoplasmosis of 5.26%. The results of all four methods of testing correlated well. The neutralizing antibody test seems to be the most consistent indicator, although the skin test is a reliable indicator in this type of survey. In addition to the obstetric patients tested, seven infants were given skin tests to determine whether this method of testing would be deleterious to an infant. No untoward symptoms were noted nor were any positive reactions recorded.

Journal of Applied Physiology, Washington, D. C.

3:691-752 (June) 1951

Effects of Extreme Heat and Cold on Human Skin: I. Analysis of Temperature Changes Caused by Different Kinds of Heat Application. K. Buettner.—p. 691.

Id.: II. Surface Temperature, Pain and Heat Conductivity in Experiments with Radiant Heat. K. Buettner.—p. 703.

Reflex Factors in Clonus and Tremor. M. H. Clare, W. H. Mills and G. H. Bishop.—p. 714.

Effect of Exercises of Graded Intensity on Neuromuscular Tremor as Measured by Strain Gauge Technique. W. W. Tuttle, C. D. Janney, D. Wilkerson Jr. and C. J. Imig.—p. 732.

Glucuronic Acid and Cinchophen Ulcer. D. F. Magee, K. S. Kim and A. C. Ivy.—p. 736.

Journal of Aviation Medicine, St. Paul.

22:177-260 (June) 1951

Physics and Psychophysics of Weightlessness. H. Haber and S. J. Gerathewohl.—p. 180.

Antagonistic Effects of Certain Drugs at Low Barometric Pressures. G. Margolis, F. Bernheim and W. W. Hurteau Jr.—p. 190.

Influence of Certain Anti-Motion-Sickness Drugs on Psychomotor and Mental Performance. R. A. MacKay and J. K. W. Ferguson.—p. 194.

Method for Analysis of Psychomotor Performance Under Hypoxia. S. J. Gerathewohl.—p. 196.

Sensory Illusions of Flying. G. E. Schafer.—p. 207.

Heart Sounds in Anoxia. H. Kirschbaum.—p. 212.

Studies on Microorganisms of Upper Atmosphere: I. Development of Methods and Material. R. B. Mitchell, D. E. Timmons and H. W. Dorris Jr.—p. 214.

Parallel Production of Altered Infectivity of Streptococcus and Related Filtrate Agents Isolated from Outdoor Air. E. C. Rosenow.—p. 225.

Streptococci from Outdoor Air in Relation to Seasonal Occurrence of Infections Involving Respiratory Tract and Nervous System Respectively. E. C. Rosenow.—p. 235.

Toxicity of Morphine Sulfate in White Mice Under Influence of Cold. A. J. Nedzel.—p. 244.

Journal Clin. Endocrinology, Springfield, Ill.

11:663-802 (July) 1951

*Use of Progesterone in Treatment of Cancer of Prostate. J. B. Trunnell, B. J. Duffy Jr., V. Marshall and others.—p. 663.

Influence of Cortisone and Adrenocorticotropin on Urinary Gonadotropin Excretion. A. R. Solval and L. J. Soffer.—p. 667.

Hormone Excretion in Liver Disease and in Gynecomastia. J. Rupp, A. Cantarow, A. E. Rakoff and K. E. Paschkis.—p. 688.

Studies Concerning Mechanism of Water Retention in Addison's Disease and in Hypopituitarism. A. Slessor.—p. 700.

Testosterone Cyclopentylpropionate: Long-Acting Androgen. C. W. Lloyd and J. Fredericks.—p. 724.

Changes in Responsiveness to Insulin Induced by Desoxycorticosterone, in Diabetes Mellitus. H. J. Zimmerman, A. E. Parrish and L. K. Alpert.—p. 728.

Improved Pellet Implanter. W. H. Perloff.—p. 737.

Cretinism with Goiter: Case Report. J. B. Stanbury.—p. 740.

Progesterone in Cancer of Prostate.—Trunnell and co-workers treated 19 patients with histologically diagnosed prostatic cancer with progesterone or with anhydrohydroxy-progesterone. Of the nine who had received no other treatment eight improved, but two of these later relapsed. Of the 10 in whom the progesterone preparations were used after they had relapsed despite castration or estrogen therapy, seven showed some improvement. In six instances patients were made definitely worse as a result of these medications. Four of the six received anhydrohydroxy-progesterone. Although efficacious, the progesterone preparations cannot be recommended in preference to castration or to estrogen administration, but for patients who have relapsed after other forms of treatment, a trial of progesterone is indicated. The authors employed a daily intramuscular dose of 100 mg. of progesterone in 80% sesame oil in 20% benzyl alcohol. In the event of apparent stimulation of the cancer growth, the dosage is decreased to 50 mg. per day and may be reduced to 25 mg. per day if necessary. Doses larger than 100 mg. per day have not given additional benefit and may result in stimulation of the cancer. Experience with anhydrohydroxy-progesterone has been even more limited, and this substance seems to be a two-edged sword. Doses of 50 mg. per day by mouth are suggested.

Journal of Clinical Investigation, Cincinnati

30:685-792 (July) 1951

Investigation of Glucuronic Acid Metabolism in Human Subjects. W. H. Fishman, M. Smith, D. B. Thompson and others.—p. 685.

Effectiveness of New Compound, Benemid, in Elevating Serum Penicillin Concentrations. J. M. Burnell and W. M. M. Kirby.—p. 697.

*Joint Temperature Measurement in Evaluation of Anti-Arthritic Agents. J. L. Hollander, E. K. Stoner, E. M. Brown Jr. and P. deMoor.—p. 701.

Effect of Epinephrine on Pulmonary Circulation in Man. A. C. Witham and J. W. Fleming.—p. 707.

Electrophoretic Studies in Liver Disease. M. Franklin, W. B. Bean, W. D. Paul and others.—p. 718.

Hyponatremia in Hepatic Cirrhosis Following Paracentesis. W. P. Nelson III, J. D. Rosenbaum and M. B. Strauss.—p. 738.

Studies on Renal Oxygen Consumption in Man: I. Effect of Tubular Loading (PAH), Water Diuresis and Osmotic (Mannitol) Diuresis. J. K. Clark and H. G. Barker.—p. 745.

Effects of Increase in Plasma Volume on Metabolism and Excretion of Water and Electrolytes by Normal Subjects. L. G. Welt and J. Orloff.—p. 751.

Determination of Sulfhydryl Groups in Serum: II. Protein Alterations Associated with Disease. E. B. Schoenbach, N. Weissman and E. B. Armistead.—p. 762.

Estimation of Renal and Extrarenal Clearance of Radioiodide in Man. W. M. McConahey, F. R. Keating Jr. and M. H. Power.—p. 778.

Purple Color Reaction Given by Diphenylamine Reagent: I. With Normal and Rheumatic Fever Sera. W. Ayala, L. V. Moore and E. L. Hess.—p. 781.

Effect of Hexamethonium as Compared to Procaine or Metycaine Lumbar Block on Blood Flow to Foot of Normal Subjects. H. W. Schnaper, R. L. Johnson, E. B. Tuohy and E. D. Freis.—p. 786.

Anti-Arthritic Agents: Effects on Joint Temperature.—This method for determining intra-articular temperature consisted of inserting a filamentous copper-constantan thermocouple into the joint space (usually the knee) through the bore of an aspirating needle. Serial intra-articular temperature determinations were made on 21 patients with rheumatoid arthritis before, during, and after a course of parenterally administered corticotrophin (ACTH) or cortisone. Cell counts were made on the synovial fluid obtained at the time of aspiration for temperature determination in nine of the 21 patients. There was a pronounced fall in joint temperature in every instance within the first 24 hours of corticotrophin or cortisone administration, which approached normal by the fourth day of the treatment period. Joint fluid cell counts showed a pronounced drop. Cortisone was administered orally to six patients with rheumatoid arthritis, with serial joint temperature determinations showing a similar fall in every instance. Eight patients with rheumatoid arthritis were given various other steroids for a period of one week, and serial joint temperature determinations were made. Cortisone was then substituted without the patients' knowledge. None of the supposed anti-arthritic agents produced the fall in joint temperature that occurred in every case after the substitution of cortisone. Serial joint temperature determination is suggested as a rapid and possibly specific laboratory method for establishing additional evidence of therapeutic effectiveness of anti-arthritic agents.

Journal of Infectious Diseases, Chicago

88:207-306 (May-June) 1951. **Partial Index**

Virulence Enhancing Action of Mucins: Survey of Human Mucins and Mucosal Extracts for Virulence Enhancing Activity. H. Smith.—p. 207.

In Vitro Cultivation of Mexican Strain (Vallée "A" Type) of Foot-and-Mouth Disease Virus. D. L. Mace, H. W. Dunne, E. A. Eichhorn and F. Camargo N.—p. 212.

Effect of X-Irradiation on Rats With and Without Bartonella Muris. P. E. Rekers.—p. 224.

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Studies on Experimental Epidemiology of Respiratory Infections: V. Evaluation of Factors Related to Slit Sampling of Air-Borne Bacteria. L. J. Goldberg and I. L. Shechmeister.—p. 243.

Studies in Trichinosis: I. Immunity to Reinfection in Mice Following Single Light Infection. I. Rappaport and H. S. Wells.—p. 248.

Study of Freshly Generated Bacterial Aerosols of Micrococcus Candidus and Escherichia Coli. R. M. Ferry, L. E. Farr Jr., J. Rose and M. R. Blau.—p. 256.

Laboratory Aspects of Infection with Newcastle Disease Virus in Man. M. C. Hunter, A. H. Keeney and M. M. Sigel.—p. 272.

Experimental Human Salmonellosis: I. Pathogenicity of Strains of Salmonella Meleagridis and Salmonella Anatum Obtained from Spray-Dried Whole Egg. N. B. McCullough and C. W. Eisele.—p. 278.

Experimental Arthritis in Albino Rats Produced by Strain of Corynebacterium. H. Friedlander, R. T. Habermann and L. W. Parr.—p. 290.

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Journal of Investigative Dermatology, Baltimore

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Panthenol: Its Topical Use in Cutaneous Ulceration. F. C. Combes and R. Zuckerman.—p. 379.
Examination of Epidermis by Strip Method of Removing Horny Layers: I. Observations on Thickness of Horny Layer, and on Mitotic Activity After Stripping. H. Pinkus.—p. 383.
Chemotherapy of Eczema—Dermatitis. I. Oral Administration of Sulfapyridine: Analysis of 301 Cases. L. J. A. Loewenthal.—p. 387.
Gamma Globulins in Some Diseases of Skin. T. Cornbleet and J. de la Huerga.—p. 401.
Some Investigative Studies of Pigmented Nevi with Cutaneous Microscopy. L. Goldman.—p. 407.
Adaptation of Adamstone-Taylor Frozen Section Technic for Rapid Diagnosis of Skin Lesions. H. Mescon, H. Beerman and F. D. Weidman.—p. 429.

Journal-Lancet, Minneapolis

71:215-252 (June) 1951

The Rh Factor and Transfusions. A. K. Johnson.—p. 215.
Erythroblastosis Fetalis: Notes on Prognosis. B. Chown.—p. 219.
Management of Difficult Labors. W. B. Stromme.—p. 222.
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J. National Malaria Society, Columbia, S. C.

10:97-196 (June) 1951

SYMPOSIUM ON NATION-WIDE MALARIA ERADICATION PROJECTS IN THE AMERICAS

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III. Eradication of Anopheles Darlingi from Inhabited Areas of British Guiana by DDT Residual Spraying. G. Giglioli.—p. 142.
IV. Nation-Wide Malaria Eradication Program in Brazil. M. Pinotti.—p. 162.
V. General Principles of Eradication Programs in Western Hemisphere. F. L. Soper.—p. 183.

J. Neuropath. and Clinical Neurology, Chicago

1:183-260 (July) 1951

Hereditary Ataxia: Pathologic Study of Five Cases of Common Ancestry. J. W. Schut and W. Haymaker.—p. 183.
Patterns of Disorientation in Organic Brain Disease. E. A. Weinstein and R. L. Kahn.—p. 214.
Peculiar Type of Intraventricular Glioma. C. Araki and N. Hoshino.—p. 226.
Studies on Effects of Intrathecal Injections of Ephedrine Sulphate on Spinal Cord. K. R. Brizzee and J. J. Wu.—p. 234.
Altered Pathology of Poliomyelitis in Local Area. A. Nettleship and D. E. Fletcher.—p. 250.

Journal of Nutrition, Philadelphia

44:191-344 (June) 1951. **Partial Index**

Congenital Cataract in Albino Rats Fed Different Amounts of Tryptophan and Niacin. R. L. Pike.—p. 191.
Effect of Canning Procedures on Nutritive Value of Protein in Peas. G. Armbruster and H. C. Murray.—p. 205.
Effect of Heat Treatment on Nutritive Value of Milk Proteins: III. Effect of Heat on Casein, Lactalbumin, and Their Lactose-Induced Derivatives, with Special Reference to Digestibility and Rate of Release of Lysine, Methionine and Tryptophan. B. B. Cook, J. Fraenkel-Conrat, B. Singer and A. F. Morgan.—p. 217.
Nitrogen Balance Index in Adult Rat as Affected by Diets Low in L- and DL-Methionine. E. S. Nasset and J. T. Anderson.—p. 237.
Energy Expenditure for Quiet Play and Cycling of Girls 6 to 14 Years of Age. E. M. Thompson, M. E. R. Bal, E. M. McIntosh and others.—p. 275.
*Biological Value of Enzymatic Digest of Bovine Plasma. A. A. Albanese, R. A. Higgons, G. E. MacDonald and others.—p. 281.
Energy Expenditure of Boys and Girls 9 to 11 Years of Age (1) Washing and Wiping Dishes, (2) Boys Engaged in Carpentry, and (3) Girls Sewing. C. M. Taylor, O. F. Pye, M. Schafer and S. Wing.—p. 295.
Improving Nutritive Value of Flour: IV. Significance of Use of Enriched Flour in Diet. B. D. Westerman and M. Stone.—p. 313.
Stability of Aqueous and Oily Vitamin A Acetate and Carotene Solutions. J. G. Bieri.—p. 327.

Digest of Bovine Plasma: Value in Man.—Investigation of the oral and parenteral nutritive value of an enzymatic digest of bovine plasma was undertaken in infants and adults. It was found that the nitrogen retention and weight gains of male infants maintained on a "synthetic" milk diet, in which an enzymatic digest of bovine plasma constituted the principal source of protein, were equal, if not superior, to those obtained with an evaporated milk formula fed at the same fluid, caloric distribution, and nitrogen levels. The nutritional value of the hydrolysate was not improved by reinforcement with isoleucine and methionine. Tests of the digest given parenterally to adult males showed an average utilization of 86.3% of the infused nitrogen. A comparison of available data on total amino nitrogen losses incurred by intravenous alimentation with various protein hydrolysate and amino acid preparations discloses that the losses found with the bovine plasma digest were not excessive. In general, the total amino nitrogen wastage is higher with enzymatic digest of proteins. The wastage of available peptides is about 30% of those infused, regardless of their concentration in the preparation. However, the nutritional value of these products cannot be justly appraised by this criterion. It is possible that the nutritional value of nitrogen derived from sources that include peptides may be greater than that of an equivalent amount of nitrogen in the form of a mixture of free amino acids.

J. Pharmacology & Exper. Therap., Baltimore

102:71-144 (June) 1951

Cardiovascular and Respiratory Effects of 3-Hydroxy-2-Phenyl Cinchoninic Acid. H. A. Walker, S. Wilson, C. Farrar and others.—p. 71.
Pharmacology of Mono Methyl Ethers of Mono-, Di-, and Tripropylene Glycol in Dog with Observations on Auricular Fibrillation Produced by These Compounds. F. E. Shideman and L. Procita.—p. 79.
Protection Against Experimental Beryllium Poisoning by Aurin Tricarboxylic Acid. M. R. White, A. J. Finkel and J. Schubert.—p. 88.
Effect of Administration of Carbon Tetrachloride to Rats on Certain Reactions of Liver in Vitro. M. L. Richter.—p. 94.
Studies on Metabolism of Para-Aminobenzoic Acid. C. W. Tabor, M. V. Freeman, J. Baily and P. K. Smith.—p. 98.
Studies on Intravenously Injected True Cholinesterase. A. G. Karczmar, T. Koppanyi and G. C. Sheatz.—p. 103.
Absorption, Distribution and Elimination of Radioactive Carbon Tetrachloride by Monkeys upon Exposure to Low Vapor Concentrations. D. D. McCollister, W. H. Beamer, G. J. Atchison and H. C. Spencer.—p. 112.
Action of Mercurial Diuretics on Effective Refractory Period, Electrical Excitability and Conduction Velocity in Mammalian Heart. A. Farah and W. Mook.—p. 125.
Study of Drug Action on Mammalian Ciliated Epithelium. J. V. Scudi, E. T. Kimura and J. F. Reinhard.—p. 132.
Combined Action of Cardiotoxic Drugs: Study of Acute Toxicity of Combined Quinidine, Meperidine, Pentobarbital, Procaine and Procaine Amide. B. Calesnick, N. H. Smith and R. Beutner.—p. 138.

J. Venereal Disease Information, Washington, D. C.

32:177-202 (July) 1951

Intramuscular Injections of Chloromycetin in Treatment of Granuloma Inguinale. F. W. Harb, W. G. Simpson and C. E. Wood.—p. 177.
Blindness Due to Syphilis. J. V. Klauder—p. 183.
Effect of Additional 4 Minutes' Rotation on Reactions to VDRL Slide Flocculation Test. W. E. Machala and F. R. Hassler.—p. 192.

Chloramphenicol in Granuloma Inguinale.—Finely ground chloramphenicol (chloromycetin*) was suspended in graded amounts of sterile isotonic solution of sodium chloride until the resultant suspension contained 500 mg. of chloramphenicol per cubic centimeter of suspension. The final product had a consistency not unlike that of repository penicillin. A single intramuscular injection of 2 gm. of this suspension gave measurable serum levels for 24 hours and urinary excretion levels for 72 hours. A 4-gm. injection consistently maintained serum levels for 72 to 96 hours. Initially, the treatment schedule was set at a single injection of 2 gm. (4 cc. of suspension) given intramuscularly every 96 hours for three injections, a total of 6 gm. in eight days. This schedule was increased to 4 gm. every 72 hours after two patients treated with the previous schedule relapsed. At another hospital a schedule of 4 gm. of suspension every 96 hours was used from the start and throughout the study period. Forty-three patients with granuloma inguinale were treated with this material. Thirty-eight of these responded favorably and remained cured over follow-up periods of from two to 11 months. Two of the five patients who relapsed were in the group treated first, when too small doses were used. No evidence of resistance to chloramphenicol was noted in the patients who were re-treated. The simplicity of the schedule in this parenteral administration of chloramphenicol makes this method suitable for use on outpatients.

Kansas Medical Society Journal, Topeka

52:257-312 (June) 1951

*Carcinoma Developing in Jejunal Ulceration Following Gastroenterostomy for Peptic Ulcer: Case Report. W. A. Grosjean and J. M. Davis. —p. 257.
Surgical Treatment of Extensive Skin Cancer of Lower Eyelid. C. A. Hardin and D. W. Robinson.—p. 260.
Uses of Radioactive Gold Colloid in Therapy and Palliation of Neoplastic Disease. W. N. Harsha.—p. 263.
Roentgenographic Study of Edentulous Jaws. R. W. Edwards.—p. 267.

Carcinoma in Jejunal Ulceration.—Jejunal ulceration is a rather frequent complication of gastroenterostomy for peptic ulcer, but malignant degeneration of a jejunal ulcer following gastroenterostomy must be extremely rare, since a comprehensive review of literature revealed only one such case, which was reported by Santy in 1939. The authors report a case of their own. A man, 67, with a ruptured pyloric ulcer was treated by closure of the perforation and short loop posterior gastroenterostomy. He was well for 14½ years, then rather suddenly a sense of fulness developed in the abdomen followed by pain, nausea, and vomiting. He improved temporarily on an ulcer regimen, but later had to be hospitalized, because of continued vomiting and loss of 40 lb. (18.1 kg.) in six months. At operation a mass was found and removed by wide excision. The operation involved transverse colectomy, subtotal gastrectomy, and resection of a portion of the jejunum beginning at the duodenojejunal juncture. The jejunal and colonic continuity were reestablished by end-to-end anastomosis, then antecolic, antiperistaltic gastrojejunostomy was done, and a small knuckle colostomy proximal to the colon anastomosis was made, after which the abdomen was closed in layers without drainage. Approximately four weeks were allowed for improvement in nutritive state before the colostomy was closed. Five and one-half months later there was no evidence of recurrence. Apparently, the inherent lack of potential of the epithelium of the small bowel for neoplasia is an important factor in the rarity of malignant degeneration in marginal ulcers. The authors state that after completion of their report their attention was called to a number of similar cases reported in the European literature.

Kentucky Medical Journal, Bowling Green

49:279-322 (July) 1951

*Use of Carob Flour in Gastro-Intestinal Disturbances. H. S. Andrews. —p. 279.
Use and Abuse of Cerebrospinal Fluid. E. Roseman.—p. 281.
Comparative Value of Precordial Electrocardiograms Obtained with CF and V Leads. M. M. Weiss and W. R. Gray.—p. 285.
Expanding Industrial Health Requires Qualified Physicians. G. R. Rowntree.—p. 290.
Unusual Abdominal Findings Simulating Acute Appendicitis: I. Primary Omental Torsion. II. Solitary Diverticulitis of Cecum. J. F. Van Meter and J. B. Floyd Jr.—p. 292.
Tendinitis and Subacromial Bursitis. K. A. Fischer and K. D. Leatherman.—p. 296.

Carob Flour in Gastrointestinal Disturbances.—Carob flour is obtained from the pulp of the pod of the carob tree, which is found along the shores of the Mediterranean, in Southern Europe, in Africa, and in Asia. A Spanish observer noticed that constipation developed in animals and children eating the flower and decided to use it in the treatment of diarrhea. Andrews used carob flour in 100 children with diarrhea, who ranged in age from 7 days to 12 years. Carob flour was used as an adjunct to fluid and electrolyte replacement therapy, chemotherapy of various types, and other routine measures. Carob flour was never used unless the diarrhea was a major problem. It was fed mixed with water and sweetened with saccharin, for 48 to 72 hours. After this the flour was incorporated into the formula and fed at regular intervals. After the formula was begun the water solution of carob flour was continued between feedings. It was found most practical to use a 5% solution in children under 2 years of age and a 10% solution in those over 2. The author concluded that carob flour is of distinct benefit as an adjunct in the treatment of diarrhea. Regurgitation of the fluid or formula containing carob flour was fairly frequent, but this did not seem to influence the progress or the improvement in the stools.

Maine Medical Association Journal, Portland

42:165-212 (June) 1951

Ruptured Gastric Ulcer: Unusual Complication Following Vagotomy and Gastroenterostomy. J. D. Southworth.—p. 165.
Peptic Ulcer and Pituitary Adrenal System. F. P. Turner.—p. 170.
Physical Medicine and Rehabilitation for Patients with Hemiplegia. L. R. Burnham.—p. 173.

Military Surgeon, Washington, D. C.

108:467-552 (June) 1951. **Partial Index**

Medical Problems of Military Aviation. E. J. Kendricks.—p. 467.
*Study of Incontinence and Impotence Following Prostatic Surgery. R. B. Rowe and J. C. Kimbrough.—p. 481.
Practical Consideration of National Blood Program. L. R. Newhouser. —p. 483.
Herpes Zoster Ophthalmicus Successfully Treated with Aureomycin. T. Benedek.—p. 491.
Treatment of Malaria in Temperate Climate. S. B. Lindsey and L. M. Bevins.—p. 494.
Intestinal Parasitic Infection in Military Personnel of the U. S. Marine Corps. W. W. Taylor Jr.—p. 495.

Complications Following Prostatic Surgery.—Of 600 patients who had undergone prostatectomy during a five-year period (1945-1950), 157 returned questionnaires that could be used in an analysis. An attempt was made to evaluate the patient's complaints, emphasis being placed on the symptoms of incontinence and impotence. There were cross-checks in the questionnaire on the validity of the symptom and the reliability of the patient. Each case was further checked against the hospital record, and no case was included in which less than four months had elapsed since the surgical treatment. A transurethral electroresection was done in 80 patients, conservative perineal resection in 48, total and radical perineal operation in 19, suprapubic operation in seven, and retropubic operation in three. A total of 19.1% of these patients had either stress or total incontinence following their operation and had to wear a pad or some appliance. Prior to surgery, 8.9% of the patients were classified as impotent. Following surgery an additional 32.5% had been made impotent. A decrease in sexual activity was noted by 63.1% of the cases following prostatic surgery. In some instances age may have colored the memories of the patients, especially with regard to their preoperative condition.

Minnesota Medicine, St. Paul

34:621-724 (July) 1951

From Stone Ax to Atom Bomb. J. F. Norman.—p. 641.

SYMPOSIUM ON ACUTE ABDOMINAL CONDITIONS

Pathological Aspects. P. W. Schafer.—p. 645.
Roentgen Diagnosis. L. G. Rigler.—p. 650.
Surgical Aspects. O. G. McDonald.—p. 661.
Urological Aspects. T. H. Sweetser.—p. 663.
Gynecological Aspects. J. J. Swendson.—p. 664.
The 1950 Cancer Statistical Study by the Minnesota Department of Health. N. O. Pearce and D. S. Fleming.—p. 668.
Ear Findings in Brain Tumors. H. A. Brown and J. G. Love.—p. 672.

New England Journal of Medicine, Boston

244:893-924 (June 14) 1951

Influence of Small Rural Hospital on Advancement of Surgery in the New England States. E. H. Risley.—p. 893.
Perforated Peptic Ulcer: Study of Indications for Nonsurgical Treatment in Selected Cases. R. H. Vaughan and R. Warren.—p. 898.
Chronic Dissecting Aneurysm of Aorta Resembling Chronic Rheumatic Heart Disease. E. Levine, M. Stein, G. Gordon and N. Mitchell. —p. 902.
Trauma of Phrenic Vessels. G. H. Donnelly, C. F. Stewart and S. R. LoVerme.—p. 906.
Schizophrenia and Hormones: Some Present Trends: Their Implications and Backgrounds. W. Malamud.—p. 908.

244:925-958 (June 21) 1951

Accurate Method for Rapid Blood Grouping of Large Numbers of People. F. H. Allen Jr., L. K. Diamond and H. J. Madden.—p. 925.
Exploratory Culdotomy—Alternative to Laparotomy: Proposed Aid to Early Detection of Pelvic Cancer. J. B. Boyle.—p. 930.
Management of Diabetic Neuropathic Joints. H. Parsons and W. S. Norton II.—p. 935.
Review of New Drug Therapies in Treatment of Alcoholism. J. Thimann. —p. 939.
Pancreatic Surgery. R. B. Cattell and K. W. Warren.—p. 941.

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New York State Journal of Medicine, New York

51:1233-1360 (May 15) 1951

Clinical Review of 300 Gallbladder Operations. H. H. Romack, N. Krumdieck and D. M. Vickers.—p. 1287.
Fifteen-Year Analysis of Maternal Mortality at Flushing Hospital, 1935-1949. F. Carpenter and G. Schaefer.—p. 1294.
Digitalis and Mercurials Alone and in Combination in Management of Severe Congestive Failure with Regular Sinus Rhythm and Slow Heart Rates. H. Gross, S. I. Kreps and E. B. Weiner.—p. 1299.
Evaluation of Roniacol Tartrate in Arteriosclerosis Obliterans. I. H. Richter, M. Fogel and H. Fabricant.—p. 1303.
Use of Sodium in Management of Chronic Congestive Failure. I. S. Eskwith.—p. 1305.
Further Experiments on Formation of Skin Tolerance to Antihistaminic Drugs. S. Monash and A. Guiducci.—p. 1309.
Topical Treatment of Tinea Capitis. I. J. Mintzer and A. Eliassow.—p. 1310.
Topical Estrogens in Acne Vulgaris. A. J. Philip.—p. 1313.
Effects of Priscoline in Diabetes: Preliminary Study. M. I. Sasson.—p. 1315.

51:1361-1456 (June 1) 1951

Radioiodine: Principles of Diagnosis and Treatment of Thyroid Disease. B. J. Duffy Jr. and J. W. Howland.—p. 1399.
Simple Test for Occult Varicose Veins. P. H. Rakov.—p. 1405.
Newer Therapeutic Procedures in Pruritus Ani. R. Turell.—p. 1408.
Treatment of Chronic Congestive Heart Failure with New Meralluride (Mercuhydrin) Suppository. E. Levokove and L. A. Sarrow.—p. 1410.
Desoxycorticosterone Acetate and Ascorbic Acid. J. R. Dordick, J. S. Rechtschaffen and S. Alexander.—p. 1413.
Primary Bronchogenic Carcinoma of Lung. C. A. Ribaudo.—p. 1416.
Conduct of Internist Toward Patient and His Family When Diagnosis of Malignancy is Established. S. Leibowitz.—p. 1421.
Incisional Hernia. H. L. Skinner and J. L. Elliott.—p. 1424.

Ohio State Medical Journal, Columbus

47:489-608 (June) 1951. **Partial Index**

Allergy. J. Forman.—p. 513.
Present Status of Penicillin in Management of Syphilis. R. L. Kile.—p. 522.
Amino Acids in Treatment of Chest Infections. F. H. Newton.—p. 523.
Newer Concepts of Pulmonary Circulation in Man. H. A. Zimmerman.—p. 525.
Psychiatric Referral: When and How. L. Pillersdorf.—p. 527.
Purpose of Receiving Hospitals. E. E. Elder and M. Benimoff.—p. 531.
Wheat Germ Oil Concentrate as Aid in Reduction of Pregnancy Complications. W. M. Silbernagel and J. B. Patterson.—p. 533.

47:609-696 (July) 1951

Radiological Defense Against Atom Bomb. D. A. Russell.—p. 633.
*Hypertension and Arterial Disease. P. S. Ross.—p. 639.
Standardization of Technique and Interpretation of Tuberculin Test. S. W. Simon and L. Rinard.—p. 645.
Bronchial Asthma Due to Food Allergy. C. K. Walter.—p. 650.
Art in Plastic Surgery of the Nose. J. G. Himmel.—p. 652.
Economics of Industrial Ophthalmology. I. H. Stolzar.—p. 654.

Hypertension and Arterial Disease.—This is a study of 88 patients (14 men and 74 women) with hypertension, most of whom were ambulatory. They were followed for an average of 32 months, but some were studied for over 100 months. The patients were classified into three weight groups: overweight, underweight and normal weight. The overweight group have more coronary disease, more left ventricular hypertrophy, higher average blood pressures, lower average age, more elevated blood cholesterol, more frequent and more serious retinal vessel changes, and higher death rate from associated complications than do either of the other two groups. Cerebral vascular accidents seemed particularly common in the overweight group, and coronary deaths were commonest in the underweight group. Fifty-six patients were treated with potassium thiocyanate. No effect on blood pressure was noted in 39 of these 56 patients, there was a slight lowering in 14; and there was a rise in three patients. Salt restriction was tried with unimpressive results in 32 patients, but the diet was probably not adhered to closely. Sedatives of various types were tried on 21 patients; there was no effect in 14 cases, a slight lowering effect in seven cases. Loss of weight caused lowering of pressure in seven of 19 patients. No effect was observed in 12 patients. This result surpasses that of any of the other treatments, though it is still only about 40%. The results obtained with the veratrum alkaloids and the nitrite groups were not impressive. It was found that of 63 patients, 39 could not tell when the blood pressure was up or down, 14 actually felt better when the pressure was up, four patients were equivocal, sometimes feeling better when the pressure was up and sometimes when it was down, and only six patients felt consistently better when the pressure was down. Hypertension should be regarded merely as a condition occurring in patients in whom the arterial pathology occurs earlier, more frequently, and more severely than in the nonhypertensive group of patients, the latter having the same vascular degenerations but to a lesser extent. Hypertension is important not in itself, but because of the underlying and associated vascular changes.

Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

77:193-378 (June) 1951

Radioactive Iodinated Human Serum Albumin as Tracer Agent for Diagnosing and Localizing Intracranial Lesions. S. N. Chou, J. B. Aust, G. E. Moore and W. T. Peyton.—p. 193.
*Diminished Adrenal Cortical Function in Diabetes as Shown in Eosinophil Response to Stress of Surgery. J. B. Field and A. Marble.—p. 195.
Effect of Hypophysectomy on Intrathyroidal Metabolism of I^{131}. A. Albert and N. Lorenz.—p. 204.
Apparent Discrepancies in Evaluation of Adrenocorticotrophic Hormone (ACTH) Activity by Two Assay Methods. W. O. Reinhardt and Choh Hao Li.—p. 229.
Purified Fraction of Thioflavine-S (Vasoflavine): Valuable Agent for Visualization of Blood Vessels. J. B. Moses, A. J. Emery and J. U. Schlegel.—p. 233.
Passive Sensitization of Human Skin by Sera of Guinea Pigs Anaphylactically Sensitized to Ovalbumin. W. B. Sherman and E. J. Coulson.—p. 245.
Certain Relationships Between Pteroylglutamic Acid, Citrovorum Factor, and Cortisone. D. S. Gaines, H. P. Broquist and W. L. Williams.—p. 247.
Persistence of Virus in Urine as Factor in Spread of Infectious Hepatitis in Dogs. G. C. Poppensiek and J. A. Baker.—p. 279.
Some Early Nuclear Effects of Ionizing Radiation. S. Warren, M. W. Holt and S. C. Sommers.—p. 288.
Failure of Aureomycin in Treatment of Experimental Leishmaniasis. Nai-Chu Chang and Feng-Ting Liu.—p. 299.
Effect of Protein Depletion upon Enzyme Activities of Organs. N. Millman.—p. 300.
Relation of Protein Nutrition to Healing of Experimental Wounds. M. B. Williamson, T. H. McCarthy and H. J. Fromm.—p. 302.
Measurement of "Extracellular Fluid Space" in Infants by Equilibration Technic Using Insulin and Sodium Ferrocyanide. P. L. Calcagno, G. S. Husson and M. I. Rubin.—p. 309.
Ascorbic Acid and Hyaluronidase Hyaluronic Acid Reaction. E. Reppert, J. Donegan and L. E. Hines.—p. 318.
Some Hormones Involved in Elaboration or Activation of Mammary Spreading Factor. J. R. Elliot and C. W. Turner.—p. 320.
Clinical and Metabolic Study of 17-Hydroxycorticosterone (Kendall Compound F): Comparison with Cortisone. G. A. Perera, C. Ragan and S. C. Werner.—p. 326.
Radioactive Sodium Clearance as Test of Circulatory Efficiency of Tubed Pedicles and Flaps. H. Conway, B. Roswit, R. B. Stark and R. Yalow.—p. 348.
Effect of Cortisone on Serum Non-Specific Hyaluronidase Inhibitor Following Surgical Trauma. J. W. Cole and W. D. Holden.—p. 363.

Adrenal Cortical Function in Diabetes.—The levels of circulating eosinophils as a measure of adrenal cortical response to the stress of surgery were followed in 25 diabetics and 13 nondiabetics. All the nondiabetics had eosinophil levels that were decreased more than 50% of the preoperative count. Ten of the diabetics showed diminished adrenal cortical function, as indicated by an eosinophil count on the second postoperative day that was depressed less than 50% of the preoperative level. Four-hour corticotrophin (ACTH) and cortisone tests were done on five of these 10 diabetics and confirmed the reduced adrenal cortical reserve. The adrenal cortex was capable of responding normally to the initial stress of surgery, but its reserve capacity was insufficient to maintain the eosinopenia for 48 hours. The abnormal adrenal response seems to be correlated with the duration of the diabetes. It is possible that this decrease in the activity of the adrenal may be a compensatory change resulting from the relative insulin deficiency.

Psychiatry, Washington, D. C.

14:127-254 (May) 1951. **Partial Index**

Knowledge, Morality, and Destiny. J. Huxley.—p. 129.
Hysterical Manifestations in Schizophrenic Illness. D. Noble.—p. 153.
Two Adolescents: Experiment in Interpretation of Interviews. D. Riesman.—p. 161.
Political Involvement and Interpersonal Relations. R. L. Coser.—p. 213.
Study of Need-Fulfillment on Mental Hospital Ward. C. G. Schwartz, M. S. Schwartz and A. H. Stanton.—p. 223.

Public Health Reports, Washington, D. C.

66:823-850 (June 29) 1951

Nutrition in Heath Conference of Preschool Child. P. C. Jeans.—p. 834.
Preparation of Antisera for Detection of Somatic Antigens of Salmonella Cultures. P. R. Edwards.—p. 837.

66:851-882 (July 6) 1951

Central Cooperative Clinic Study of Follow-Up in Tuberculosis Control: I. Background, Objectives, and Methodology. D. Ottenberg, K. Boucot, W. E. Chamberlain and others.—p. 853.
Effect of PAS on Emergence of Tubercle Bacilli Resistant to Streptomycin. F. Beck.—p. 863.

66:883-910 (July 13) 1951

Recent Court Decisions on Municipal Milk Inspection. M. Stein and I. L. Sonenshein.—p. 898.

Rhode Island Medical Journal, Providence

34:293-348 (June) 1951

Homo Medicus. C. J. Ashworth.—p. 309.
The Compulsory Proposal . . . Its Advantages. C. Frothingham.—p. 312.
The Compulsory Proposal . . . Its Disadvantages. L. S. Goin.—p. 313.
Co-Existent Sarcoma and Carcinoma of Uterus—Case Report. G. A. Croce and E. Meyer.—p. 316.
Congestive Failure and Liver Dysfunction. A. Caputi and D. Littman.—p. 319.

Rocky Mountain Medical Journal, Denver

48:481-564 (July) 1951

*Menopausal Syndrome Treated with Alpha-Tocopherol: Report of Two Cases and Review of Literature. S. H. Sikkema.—p. 505.
Serological Sampling for Human Brucellosis in New Mexico. L. M. Shields and M. Boggess.—p. 508.
Ophthalmologic Urgencies and Emergencies. P. C. Kronfeld.—p. 511.
Use of Dihydroergotamine Methanesulfonate (DHE-45) in Shortening Labor. M. J. Baskin and F. W. Crealock.—p. 514.
Guideposts in Control and Prevention of Rabies. R. L. Cleere.—p. 516.
New Approach to Treatment of Atrophied Muscles Resulting from Poliomyelitis Preliminary Report. M. Shmugar.—p. 519.
Practical Aspects of Fluid and Electrolyte Balance in Surgery. R. M. du Roy.—p. 521.
An Approximate Suture. G. B. Chandler.—p. 526.

Alpha Tocopherol for Menopausal Syndrome.—Histories of two women are presented in whom severe menopausal symptoms were controlled by alpha tocopherol. Estrogen therapy was believed to be contraindicated in these patients. A review of the literature shows that 365 cases treated with alpha tocopherol have now been reported, with about two out of three patients being greatly relieved. The mechanism of this control of symptoms is obscure. Vitamin E does not have estrogenic effects in rats or humans. Evidence as to its possible endocrine effects is contradictory. It was suggested that the effects of vitamin E are not mediated through hormonal mechanisms. The author feels that alpha tocopherol is a safe medication and should be tried in cases with contraindications to the use of estrogens.

Southwestern Medicine, El Paso, Texas

32:217-252 (July) 1951. **Partial Index**

*Trichobezoar: Report of One Case. A. D. Maddox.—p. 231.
Problems of the Profession with Regard to Medical Preparedness. G. Turner.—p. 232.
Clinical Evaluation of a Purified Preparation of Ovine Pituitary Gonadotrophins: Preliminary Report. T. O. Rowley and L. J. De Merre.—p. 234.
Role of Family Doctor in Mental Health. L. Schnur.—p. 238.
Report of 1,000 Stool Examinations. L. B. Dowell and J. Gililland.—p. 239.

Trichobezoar.—The case reported here is that of a 10 year old girl who had been biting her nails and chewing on the ends of her long hair. She complained of feeling sick all the time, of having no appetite, and of feeling a "knot" in her stomach. She was undernourished and appeared nervous and apprehensive. There was a large, firm mass in the epigastric region, which seemed to be in the stomach. X-ray studies with barium outlined the stomach and also the mass, which completely filled it. At operation a hairball was found and easily shelled out. The girl was discharged one week after operation. Two months later she looked greatly improved, having gained about 10 lb. (4.5 kg.).

Surgery, Gynecology and Obstetrics, Chicago

93:1-128 (July) 1951

*Some Basic Observations on Venous Thrombosis and Pulmonary Embolism. J. McLachlin and J. C. Paterson.—p. 1.
Study of Effect of Vagotomy on Experimental Pancreatitis. W. R. Schaffarzick, H. H. Ferran and R. S. McCleery.—p. 9.
Tendon Sheath Patterns in the Hand: Anatomical Study Based on 367 Hand Dissections. E. W. Scheldrup.—p. 16.
Procedure for Total Biopsy of Doubtful Polypoid Growths of Lowest Large Bowel Segment. R. T. Crowley and D. A. Davis.—p. 23.
Chronic Hypertrophic Spondylosis of Cervical Spine with Compression of Spinal Cord and Nerve Roots. J. A. Epstein and L. M. Davidoff.—p. 27.
Subtrochanteric Osteotomy for Nonunion of Neck of Femur. F. C. Reynolds and T. Otto.—p. 39.
Surgical Management of Traumatic Chylothorax. H. B. Shumacker Jr. and T. C. Moore.—p. 46.
Effects of Hypercapnia and Hypoxia on Response of Heart to Vagal Stimulation. W. G. Young Jr., W. C. Sealy, J. Harris and A. Botwin.—p. 51.
Percutaneous Femoral Artery Catheterization in Man with Special Reference to Aortography. E. C. Peirce II.—p. 56.
*Procaine Amide for Prophylaxis and Therapy of Cardiac Arrhythmias Occurring During Thoracic Surgery. S. I. Joseph, M. Helrich, H. J. Kayden and others.—p. 75.
Diffuse Familial Polyposis of Colon. C. W. Mayo, J. H. DeWeerd and R. J. Jackman.—p. 87.
*Use of Calcium Chloride in Treatment of Cardiac Arrest in Patients. J. H. Kay and A. Blalock.—p. 97.
Relation of Body Fluid Compartments to Body Fat. J. D. Hardy, P. K. Sen and D. L. Drabkin.—p. 103.
Method for Resection of Thyroglossal Duct. J. Fallon.—p. 107.
Analysis of 445 Cases of Internal Podalic Version. J. C. Jarrett and K. R. Brandeberry.—p. 109.

Venous Thrombosis and Pulmonary Embolism.—The material for the present study was obtained from routine autopsies on 100 unselected male patients over the age of 40. Special attention was given to the lungs and to the veins of the lower extremities. The pulmonary arteries and their branches were carefully searched for pulmonary emboli by the "open book" method. All gross emboli were confirmed by microscopic examination, and an attempt was made to compare their ages with those of the primary thrombi in the leg veins. The veins were removed in continuity from the lower end of the inferior vena cava to the posterior tibial vein at the level of the internal malleolus. The specimen in one piece was laid out flat, opened with a fine pair of scissors, and inspected for thrombi and for other lesions. The opened veins were then stretched out and immersed in 10% formaldehyde. All suspected thrombi were sectioned and examined microscopically to prove their ante-mortem occurrence. When points of small incipient thrombosis were encountered, the thrombosed segments were removed, in toto, and subjected to complete serial section. There were gross demonstrable venous thrombi in 34% of the cases. Of these cases a pulmonary embolus was found in 56% (19% of the total series). The incidence of thrombosis was the same for various decades. Seventy-three per cent of the thrombi arose in the thigh and pelvic veins. Nearly one-third of all thrombi arose in relation to a valve pocket. The diagnosis of primary pulmonary thrombosis, as a disease entity, is unwarranted. Surgical ligation of the superficial femoral veins, either prophylactically or therapeutically, does not appear to be justified. The separation of thrombophlebitis and phlebothrombosis, because of a supposed difference in an embolic potential, is not warranted. Serial section studies have failed to show any underlying intimal changes that would act as a precipitating factor in thrombus formation.

Procaine Amide for Cardiac Arrhythmias in Thoracic Surgery.—Ordinarily harmless rhythmic abnormalities may be potentially dangerous during surgery and general anesthesia. Among the drugs used for ventricular arrhythmias, intravenously administered procaine has given the best results. The amide of procaine ("pronestyl") may be administered in relatively large doses and will exert the effects of procaine for prolonged periods. It was used in the prophylaxis and therapy of arrhythmias in patients subjected to thoracic operations under cyclopropane anesthesia. It was given orally to 22 patients in doses of 1.0 to 2.0 gm., one to two hours prior to induction. The control series consisted of 25 patients. During thoracotomy an additional 1.0 gm. was administered intravenously in 10% solution, in divided doses, in order to achieve peak plasma concentrations of procaine

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amide at the time intrathoracic manipulations began. More of the drug was administered intravenously during the subsequent maintenance period for therapy or for pharmacologic study. Prophylactic administration reduced the incidence of all types of arrhythmias, of ventricular arrhythmias especially, and of ventricular tachycardia particularly. The drug was used in the treatment of ventricular arrhythmias in 17 patients. Intravenous injections were made 29 times, with reversion to normal sinus rhythm 25 times. The four ventricular arrhythmias that persisted reverted to normal sinus rhythm after a second injection. The dosage ranged from 0.1 to 1.0 gm. and averaged 0.5 gm. Procaine amide was used only after measures other than drugs had been unsuccessful, and it was more effective than all other measures combined, being particularly effective in patients who had received the drug prophylactically. The authors present the histories of seven patients in whom the drug proved therapeutically effective. They analyzed the factors concerned in the onset of arrhythmias during cyclopropane anesthesia and found that inadequate ventilation appeared to be the chief factor.

Calcium Chloride in Treatment of Cardiac Arrest.—Kay and Blalock cite histories of four patients to show the efficacy of 2 to 4 cc. of 10% calcium chloride in improving heart contractions in impending ventricular standstill and in the treatment of ventricular standstill occurring spontaneously or following the successful electrical defibrillation of a heart in ventricular fibrillation. The case of a girl, 5, demonstrates the therapeutic value of 4 cc. of 10% calcium chloride after 0.5 cc. of 1:1000 epinephrine hydrochloride failed in three attempts in the treatment of ventricular standstill. In a 14-month-old child, 3 cc. of 10% calcium chloride restored normal cardiac contractions after 0.5 cc. of 1:1000 epinephrine chloride had failed to do so. Although the heart had not entirely stopped beating when the calcium chloride was given to this patient, the blood pressure was not obtainable. The case demonstrated dramatically the improvement in cardiac function following the injection of 3 cc. of 10% calcium chloride. In the fourth patient, 2.5 cc. of 10% calcium chloride injected into the left ventricular cavity restored a normal heart beat after 0.5 cc. of 1:1000 epinephrine hydrochloride failed. Shortly afterward the heart beat became weak and 0.5 cc. of 1:1000 epinephrine hydrochloride improved the cardiac contractions. Calcium chloride is not necessarily superior to epinephrine hydrochloride, but the armamentarium of the surgeon should include several cardiac stimulants. Irrespective of the cardiac stimulant used in the treatment of ventricular standstill, vigorous cardiac massage must be continued until an effective beat has been restored.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

59:189-252 (May) 1951

Bacteriostatic Action of Aureomycin in Gastrointestinal Tract. M. S. Rosenblatt, Z. C. Edelson and W. R. Warrington.—p. 189.
*Placental Findings Associated with Erythroblastosis Fetalis. E. B. King. —p. 192.
Surgical Management of Peptic Ulcer. R. S. Smith.—p. 199.
Technic of Exchange Transfusion. M. R. Luke and H. von Geldern. —p. 209.
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Pregnancy in Young Girls. C. V. Von Der Ahe and J. L. Bach.—p. 235.
Obesity: Problem and Treatment. H. S. Douglas.—p. 238.

59:253-316 (June) 1951

Meig's Syndrome: Case Report. H. C. Stearns.—p. 253.
Reconstruction of Internal Ring in Inguinal Hernia Repair: Method Utilizing Cremaster Muscle. H. M. Nichols.—p. 257.
Amniotomy for Elective Induction of Labor at or Near Term: Presentation and Analysis of 653 Cases. B. J. Hanley.—p. 262.
Some Problems in Private Practice of Gynecology and Obstetrics: Clinical Statistical Study. R. L. Hoffman.—p. 275.
Ocular Changes of Hyperthyroidism. A. C. Woods.—p. 288.
Obstruction of Upper Gastrointestinal Tract in Newborn. H. E. Peters Jr. —p. 303.
Abdominal Bullet Wound: Case Report. P. G. Creese.—p. 309.
Lochia: Quantitative Study. J. B. Bernstine and R. L. Bernstine.—p. 312.

Placental Findings in Erythroblastosis Fetalis.—Among 5,945 pregnant women whose Rh status was investigated, 845 were Rh-negative. In 88 (or over 10%) of these 845, more than an isolated trace of antibodies developed during pregnancy. It was possible to compare the fetal outcome with the placental findings in 74 cases. The significant microscopic placental abnormalities included increased numbers of nucleated red blood cells in the fetal vessels, edema of the stroma, abnormally large villi, a relative decrease in the number of fetal vessels, clubbing of the villi, persistence of the Langhans' layer, and the presence of Hofbauer cells. At least one of these abnormalities was present in 31 of 37 placentas in which hemolytic disease of the newborn had been definitely diagnosed and also in seven of 22 cases in which there was no evidence of erythroblastosis fetalis. Of the 24 patients whose placentas evidenced two or more abnormalities, 20 had infants with proved hemolytic disease, two had infants with a questionable diagnosis, and two had normal infants. The increased incidence of two or more placental abnormalities in the mothers whose infants died from erythroblastosis fetalis in contrast to those who survived suggests that this observation is of prognostic value. It is felt that most of the placental changes are the direct result of a reaction to the circulating maternal antibodies rather than being secondary to the fetal disease.

Yale Journal of Biology and Medicine, New Haven

23:445-546 (June) 1951

Sam Harvey: Yankee Surgeon—Philosopher. G. F. Powers.—p. 445.
Congenital Cystic Dilatation of Renal Collecting Tubules: New Disease Entity. V. Vermooten.—p. 450.
Cortisone and Homologous Transplantations of Tumors. E. L. Howes. —p. 454.
Nitrous Oxide Method for Measurement of Cerebral Blood Flow and Cerebral Gaseous Metabolism in Dogs. W. R. Page, W. J. German and L. F. Nims.—p. 462.
*Pulmonary Resection for Tuberculosis: Report of 40 Consecutive Cases. G. E. Lindskog and F. D. Law.—p. 474.
Effect of Trauma on Wound Healing: Experimental Study. M. Taffel, A. J. Donovan and L. S. Lapinski.—p. 482.
Suggestions Concerning Use of Subclavian Which Arises from Aorta in Treatment of Tetralogy of Fallot. H. B. Shumacker Jr.—p. 486.
Frontal Lobe Surgery in Treatment of Intractable Pain: Critique. J. P. Murphy.—p. 493.
Fibrous Dysplasia of Bone: Neurosurgical Consideration in Two Cases. O. A. Turner.—p. 501.
Studies on Metabolism of Cardiac Muscle from Animals in Shock. W. J. Burdette.—p. 505.
Present Status of Tocopherol and Calcium for Prophylaxis of Postoperative Phlebothrombosis. J. H. Kay.—p. 515.

Pulmonary Resection for Tuberculosis.—Forty patients with pulmonary tuberculosis were subjected to pulmonary resection on the thoracic surgical service at the New Haven Hospital. The two earliest patients had tourniquet and mass ligation of the hilar structures; all subsequent cases were treated by individual ligation techniques. A four-rib to 10-rib thoracoplasty usually was performed after pneumonectomy if it had not already been done. Streptomycin was given to 33 of the patients; 11 of these received it both before and after the resection, the remaining 22 only after the operation. One patient had two lobectomies in separate operations, that is, a total of 41 resections was done on 40 patients. Twenty-six pneumonectomies and 15 lobectomies were done. The indications for the resections were failure of thoracoplasty in 13 patients, tuberculous bronchiectasis with or without bronchostenosis in 12, uncontrolled cavitation in eight, tuberculoma in two, suspected tumor in three, and fibrocaseous disease in one. In the patient in whom resection was done in 1936 bronchiectasis had been diagnosed, but the resected specimen disclosed tuberculous disease. Twelve of the 40 patients had postoperative complications, such as bronchopleural fistula, empyema, pulmonary spread, and wound infections. Seven of these patients belonged to the group of eight with uncontrolled cavities, most of whom had several complications and three of whom died. It is felt that pulmonary resection has earned a definite place in the therapy of pulmonary tuberculosis. Acceptable indications include thoracoplasty failure, bronchiectasis with or without bronchostenosis, chronic empyema with destroyed lung, tuberculoma, and suspected tumor. Because of the unfortunate results of resection in that group of eight patients with uncontrolled cavities, active parenchymal infiltration, and highly positive sputum, it is felt that primary resection is not at present the ideal treatment for such patients.

FOREIGN

Acta Medica Scandinavica, Stockholm

139:415-498 (May 30) 1951. **Partial Index**

Polycythemia Vera with Fibrinopenic Hemorrhagic Diathesis. K. H. Olesen and L. Poulsen.—p. 415.
*Arterial Hypertension in Unilateral Renal Disease with Inhibition of Growth, Treated by Nephrectomy. H. S. Mathisen.—p. 421.
*Isolated Pulmonary Stenosis. H. Gøtzsche, P. Eskildsen and A. T. Hansen.—p. 431.
Maturation and Proliferation in Normoblastic and Megaloblastic Erythropoiesis. E. Schwarz.—p. 445.
Efficacy of Penicillin and 2-Sulfanilamido-5-Methyl-1,3,4, Thiodiazole ("Lucosil") in Treatment of Erysipelas: Comparative Study of 150 Cases. O. Mortensen.—p. 465.
Mortality and Incidence of Gastric Carcinoma Among Patients with Pernicious Anemia in Denmark. J. Jørgensen.—p. 472.

Arterial Hypertension in Unilateral Renal Disease.—That unilateral renal disease may cause severe hypertension was established in clinical observations by Ask-Upmark in 1929, before it was experimentally demonstrated by Goldblatt and collaborators in 1934. Many Scandinavian surgeons have found that in some patients only a temporary decrease in blood pressure is obtained by nephrectomy. Proper selection of patients for the operation is important. The indications for nephrectomy that were established by Schroeder and Fish in 1940 are as follows: 1. Arterial hypertension should not have existed for more than two years. 2. The renal lesion should be confined to one kidney and should involve diminution of function in that kidney. 3. Renal function, as measured by the ability of both kidneys to concentrate urine and by the urea clearance test, should be within normal limits. 4. There should be no retinopathy and only minimal changes in the caliber of the retinal vessels. 5. Arterial pressure should be persistently elevated. These criteria were present in the author's patients, a girl, 14, with rather severe hypertension and with headaches, vomiting, and dizziness for two years. There was no increase in height and weight in this period. After removal of a small, atrophic right kidney of a pyelonephritic contracted type, the blood pressure fell and remained at normal values (100/70) for two years after the operation; simultaneously all the patient's complaints disappeared. There was a rapid increase in height and weight. This appears to be one of the few cases of unilateral renal disease with arterial hypertension in which nephrectomy has been performed in time to reduce the blood pressure before irreversible changes occurred in the other kidney. According to Ask-Upmark this disease occurs most frequently in girls and is supposedly due to a congenital anomaly of the right kidney.

Isolated Pulmonary Stenosis.—In recent years isolated pulmonary stenosis without other malformations has been recognized more frequently. The 21 cases of isolated pulmonary stenosis reviewed were discovered among 250 patients with congenital heart disease. Catheterization proved to be the decisive factor in the diagnosis, since it makes it possible to ascertain the type of stenosis, whether valvular or infundibular. There were 12 males and nine females, the youngest 4 years old and the oldest 38. The complaints were slight, particularly when compared with patients with a combination of pulmonary stenosis and venous-arterial shunt. Heart symptoms were frequent but generally not incapacitating. There were dyspnea, occasional palpitations, and precordial pain on severe or moderate exertion. The patients were not cyanotic. Clinical examination of the heart disclosed bulging of the precordium in about one-fourth of the patients. All the patients had a harsh systolic murmur, which, as a rule, was strong, with maximal intensity near the pulmonic area. The electrocardiogram in half the patients showed right axis deviation. The roentgenological picture was somewhat variable, a prominent second left arch and normal or thin hilar shadows being found in two-thirds of the patients. The prominence indicates a poststenotic dilatation. This report and other recent reports indicate that isolated pulmonary stenosis is not so rare as it formerly was thought to be. Since the present report was completed, the authors have seen 10 additional patients with isolated pulmonary stenosis. This brings the total to 31 cases among 340 patients with congenital heart disease.

Archiv für klinische Chirurgie, Heidelberg

268:243-340 (No. 3) 1951. **Partial Index**

Changes in Neurovascular System in Intestinal Wall in Chronic Constipation. I. Obiditsch-Mayer.—p. 243.
*Influence of Resection of Thrombosed Part of Artery on Disturbances in Peripheral Blood Supply. R. Herget.—p. 266.
Clinical and Histological Observations in Chemotherapy of Malignant Tumors. R. Frey, J. Fischer-Wasels, H. J. Streicher and others.—p. 282.
Penicillin Therapy of Acute Hematogenous Osteomyelitis of Children and Young Persons. P. Blümel and W. Schüler.—p. 299.
*Synovioplastic Sarcoma Originating in Articular Capsules and in Synovial Bursa. F. K. Kempf.—p. 321.

Resection of Thrombosed Section of Artery.—The therapeutic value of resection of a thrombosed section of an artery in disturbances of the peripheral blood circulation is discussed on the basis of observations on 12 patients with impaired circulation of a lower extremity resulting from endangiitis or arteriosclerosis. Clinical observations and measurements with the skin thermometer revealed that during arterial resection and for as much as 24 hours afterward the circulation was impaired, particularly in the area of the threatened peripheral portion of the extremity. After complete resection of the thrombosed arterial section, measuring from 3 to 35 cm., the circulation briefly improved in four patients, in five the condition became worse, and in three there was no change. Four patients required amputation of the thigh. A subsequent resection of the sympathetic trunk in four patients produced improvement in the circulation and also in the subjective symptoms in three of them. In four patients, in whom a resection of the sympathetic trunk had been ineffective, the arterial resection also had no effect. Resection of a thrombosed portion of an artery appears to be of no value in the treatment of impaired peripheral blood circulation of the lower extremity. The temporary improvement occasionally observed is probably caused by the wound hyperemia and by the splitting of the constricting vascular sheath and of the adductor canal. The theory that vasoconstricting stimuli originate in the thrombosed artery is contradicted not only by the lack of therapeutic response but also by the long-standing bilaterality of the lesion with symptoms occurring on only one side and by the fact that when arterial resection has been ineffective subsequent resection of the sympathetic trunk frequently counteracts the functional spasticity. It is assumed that the sympathetic fibers are present chiefly in the peripheral nerves, because, if the vasoconstrictor fibers pass through the vascular nerve plexus, then the effect of an intervention on the sympathetic trunk should be limited to the site of arterial resection, which is not borne out by clinical observations.

Synovioplastic Sarcoma.—Two cases of malignant blastoma are reported, one definitely originating in a synovial bursa and the other in the joint capsule or possibly also in a bursa. In both the reticulumlike tumor parenchyma consisted of spindle cells. One had clefts with a partially developed endothelium. In a review of the literature the authors found that neoplasms of the same matrix have been classified as fibrosarcoma with and without endothelium, sarcoendothelioma, and synovioma or "synovialoma." The authors explain the varied histological manifestations of these blastomas as a result of the peculiar character of the matrix of the synovial tissue, the individual cell of which has been designated as "synovioblast." They believe that the two blastomas described in their report, as well as those reported in the literature, can be classified in one group and can be designated as "synovioplastic sarcoma," in accordance with the nomenclature of mesenchymal malignant neoplasms. Microscopic examination is required for correct diagnosis. Early surgical treatment is essential.

Haematologica, Pavia

35:193-298 (No. 3) 1951

Lederer's Acute Hemolytic Anemia: Anatomicoclinical Study. A. Merli.—p. 193.
*Subacute and Chronic Type of Hemocytoblastic Leukemia. M. Austoni and F. Ghezzo.—p. 227.
Chronic Erythremic Myelosis. G. Fradà.—p. 255.

"Nonacute" Hemocytoblastic Leukemia.—The occurrence of "nonacute" hemocytoblastic leukemia is reported in a woman 43, a man 40, and in a girl 8. The woman had chronic microhemocytoblastic leukemia with mild hyperleucocytosis of 14

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months' duration. Temperature was normal. There were no hemorrhages and no ulcerative necrotic changes in the fauces. All of the clinical manifestations, such as asthenia, loss of weight, and hypochondriac pain, were caused by the severe anemia. The man had a subacute form of hemocytoblastic leukemia of eight months' duration. Fever, hemorrhages, and ulcerative necrotic lesions of the fauces were observed only in the terminal stage of the disease. At this time pronounced hyperleucocytosis was demonstrated, while the number of nucleated red blood cells had been normal or only slightly increased during the first months of the disease. The girl had a "triphasic" form according to Patrassi, of six months' duration. Three stages could be differentiated. The first was that of the acute type of leukemia with fever, toxic infection, and ulceration of the fauces. The blood picture at this time showed leucopenia and the presence of elements of "lymphoid type," which were probably microhemocytoblasts. The second phase was one of remission, and the blood picture was normal. In the last stage the disease was acute, exactly as in the first stage; leucopenia and microhemocytoblastic elements were again demonstrated on hematological examination. The clinical, hematological, and microscopic study of these three cases confirmed the occurrence of chronic and subacute forms of hemocytoblastic leukemia. Massive administration of antibiotics and somewhat cautious administration of sulfonamide compounds is suggested in combination with copious blood transfusions. Roentgen therapy seems to exert an unfavorable effect.

Journal of Hygiene, London

49:1-126 (March) 1951. **Partial Index**

Estimation of Bacterial Densities from Dilution Series. D. J. Finney. —p. 26.
Pathogenicity of Spores of Clostridium Botulinum. J. Keppie.—p. 36.
Life Cycle of Actinomyces Bovis. E. O. Morris.—p. 46.
Pathogenic and Immunogenic Activities of Salmonella Typhi in Relation to Its Antigenic Constituents. A. Felix and R. M. Pitt.—p. 92.
Mouse-Virulence of Strains of Salmonella Typhi from Mild and Severe Outbreak of Typhoid Fever. H. T. Findlay.—p. 111.

Lancet, London

1:1375-1422 (June 30) 1951

*Haemophilia in the Female. M. C. G. Israëls, H. Lempert and E. Gilbertson.—p. 1375.
Abdominal Emergencies from Spontaneous Rupture of Endometrial Cysts. T. Dean.—p. 1380.
Immunisation with Influenza Virus A Vaccines: Comparison of Intradermal and Subcutaneous Routes. J. C. Appleby, F. Himmelweit and C. H. Stuart-Harris.—p. 1384.
"Myocarditis" and Aortic Hypoplasia in Arachnodactyly: Report of Case. A. G. W. Whitfield, W. M. Arnott and J. L. Stafford.—p. 1387.
*Preparation of Haemopoietically Active Extracts from Faeces. S. T. E. Callender and G. H. Spray.—p. 1391.
Influence of Thyroxine on Desensitising Action of ACTH and of Cortisone in BCG-Infected Guineapigs. D. A. Long, A. A. Miles and W. L. M. Perry.—p. 1392.
Acute Puerperal Inversion of Uterus. C. J. Dewhurst and D. C. A. Bevis. —p. 1394.
Reduction of Strangulated Inguinal Hernia. C. Bowesman.—p. 1396.

Hemophilia in the Female.—Hemophilia has been regarded as being limited to males, but there is one possible hereditary combination that can give rise to a female hemophiliac: that of a male hemophiliac and a female hemophilia-carrier. Two earlier investigations, one on 600 and one on 75 families, failed to reveal any female hemophiliacs. The general opinion has been that the female hemophiliac, if ever conceived, dies in utero. There are, however, many published reports of females with a hemorrhagic diathesis whose blood-coagulation time was prolonged. Other conditions besides hemophilia may prolong the blood coagulation time, but the steps necessary to exclude these conditions have not been taken in recently reported cases of hemophilialike disease in women. In the patient whose case is reported here both parents came from hemophilic but unconnected families. The various tests on her blood all gave the results expected in hemophilia, and the other possible causes of prolonged coagulation-time, namely fibrinogenopenia, parahemophilia, and the presence of circulating anticoagulants, were excluded. The patient had given birth to a healthy female child without, at first, excessive hemorrhage. During the puerperium severe hemorrhage occurred, and hysterectomy was successfully done. The authors believe that the operation was justified, since the rate of blood-loss from the uterine cavity was so great that it would have been difficult to keep pace with it by blood transfusion. The regret felt at removing the uterus in a young woman is tempered in this case by the fact that this woman would have been advised against further pregnancies. Two points influenced the outcome of the operation favorably: the use of interrupted nonabsorbable sutures for the rectus sheath, without which the wound would probably not have healed; and the avoidance of skin-piercing sutures, through the apertures of which further bleeding would have taken place.

Hemopoietically Active Extracts from Feces.—Callender and Spray made an extract from the feces of an untreated patient with pernicious anemia and showed that when injected intramuscularly into another patient with untreated pernicious anemia the extract provoked a hemopoietic response. The experiment has since been repeated with extracts prepared from the feces of a normal person and of two more patients with untreated pernicious anemia. The method of preparation of the nontoxic extract from feces is described. From the effects of these extracts and from the growth-stimulating actions of the extracts on micro-organisms, it may be concluded that the active principle is vitamin B_{12}. As much of this vitamin could be extracted from the feces of patients with pernicious anemia as from those of normal persons, and, though the proportion lost in the process of extraction is unlikely to be constant, it seems that there is no significant difference between the amounts excreted by the two types of subject.

Medical Journal of Australia, Sydney

1:673-708 (May 12) 1951

Report of Mantoux Survey of "Displaced Persons" Migrant Children. J. P. van Leent and P. F. Hopkins.—p. 673.
Meningeal Tuberculosis in Children: Review of 40 Patients. B. W. Neal and S. Williams.—p. 676.
Pathology of Tuberculous Meningitis, with Particular Reference to Modification in Pathology Following Treatment with Streptomycin. A. L. Williams.—p. 680.
*Some Experiences in Use of Adrenaline Test in 51 Cases of Rheumatoid Arthritis. L. J. A. Parr, E. A. Shipton and P. White.—p. 682.

Use of Epinephrine Test in Rheumatoid Arthritis.—Epinephrine tests according to the Thorn method with minor modifications were performed on 51 patients with rheumatoid arthritis. The full test, including the response of the total number of leucocytes, the neutrophil cells, lymphocytes, and eosinophil cells is time-consuming. It was carried out in only 34 of the 51 patients, while the eosinophil cell response was determined in all patients. The typical response to epinephrine in normal persons consists of an increase in the total leucocyte count and in neutrophil cells, an increase then a decrease in lymphocytes, and a greater than 50% decrease in the number of eosinophil cells, also after an increase. Of the 51 patients, seven failed to show the normal eosinopenia, and therefore failed to produce adequate cortisone secretion in response to epinephrine. This would contraindicate its therapeutic use in such cases. Patients who fail to respond to epinephrine stimulation given for therapeutic reasons three or four times a day should respond to cortisone. This test may therefore be valuable in the selection of patients for epinephrine stimulation or cortisone therapy. Most of the patients with chronic rheumatoid arthritis responded normally to epinephrine, and would thus seem to have normally reacting hypothalamic pituitary adrenal cortex systems. The fact that epinephrine can produce peripheral blood changes similar to those produced by cortisone, namely, lymphopenia and eosinopenia, and that it causes an increase in the size of the suprarenal cortex gives its therapeutic use a sound scientific basis. Pre-epinephrine lymphocytosis was observed in 13 of those patients for whom a full differential leucocyte count was performed. The presence of enlarged lymph nodes in Still's disease and frequently in adult rheumatoid arthritis, as well as lymphocytosis, suggests a mild degree of so-called status thymicolymphaticus.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

95:1729-1788 (June 16) 1951. **Partial Index**

*Tropical Eosinophilia and Filariasis. J. H. Reisel and J. Groen.—p. 1736.
Form of Glaucoma in Young Persons. A. G. Krouwels.—p. 1745.
Case of Fear Hysteria Treated by Short Psychotherapy on Psychoanalytic Basis. H. Musaph.—p. 1752.

Tropical Eosinophilia and Filariasis.—In a woman living in Sumatra tropical eosinophilia developed. Living Microfilariae malayi were detected in the puncture fluid from a varicose lymph node cyst. The disorder did not respond to treatment with penicillin or neoarsphenamine, but it temporarily improved following intravenous administration of tartar emetic (antimony potassium tartrate) and cure followed treatment with antimony sodium thiomalate (anthiomaline®). The authors review the literature on tropical eosinophilia, which was first described in 1923 by de Langen and Djamil, who noticed the concurrence of increased temperature and enlargement of spleen with high leucocyte and eosinophil counts in patients in the Netherlands East Indies. In 1928 de Langen described more cases of this type, and subsequently cases were reported by several other authors. Weingarten in 1943 reported what he termed tropical eosinophilia in 81 patients whom he had observed in British India. After Weingarten's report several other observers reported similar cases. In 1939 Netherlands investigators in the East Indies observed that high eosinophilic counts occurred in patients in whom lymph nodes were found to contain microfilariae. Thus there seems to be an etiological connection between tropical eosinophilia and filariasis.

New Zealand Medical Journal, Wellington

50:83-180 (April) 1951. **Partial Index**

Past and Future in Preventive Medicine. A. W. S. Thompson.—p. 97.
Agnogenic Myeloid Metaplasia of Spleen. K. F. M. Uttley.—p. 102.
Aureomycin in Brucellosis. J. A. K. Cuningham.—p. 109.
*Investigation and Treatment of High Blood Pressure. R. Chisholm.—p. 114.
Death from Trichlorethylene in Dry-Cleaning Establishment. A. Bell.—p. 119.
Mitral Valvulotomy. E. H. Roche.—p. 127.
Diverticula of Duodenum and Small Intestine: Report of Case. B. Innes and M. H. Jameson.—p. 139.
Acute Abdomen and Trauma. H. M. Karn.—p. 142.

High Blood Pressure.—In a patient with high blood pressure the case must be investigated thoroughly before treatment is begun. The level and variations of blood pressure must be determined, and the capacity of the patient's arteries to withstand prolonged strain, the rate of progress of the hypertension, and the amount of damage already done to heart, kidneys, and brain must be estimated. Hypertension will persist throughout the patient's life and is usually slowly progressive. Chisholm discusses various treatments. He feels that it is almost impossible to obtain an unbiased opinion of the efficacy of sympathectomy in severe hypertension. The indications for operation vary from one clinic to another. The best results appear to be obtained in early cases of malignant hypertension. There is no doubt that good results have been obtained with sympathectomy in a few cases. Methonium treatment offers new hope in severe and rapidly progressive cases of hypertension. The author believes that there is a large field for combined treatments, such as low salt diet and methonium, which act synergistically.

Philippine Medical Association Journal, Manila

27:203-332 (April) 1951

Analysis of 4,302 Cases of Schistosomiasis Japonica. T. P. Pesigan.—p. 203.
Intradermal Test for Schistosomiasis Japonica (Preliminary Report). T. P. Pesigan, P. B. Putong, E. G. Garcia and C. A. Millar.—p. 212.
Studies on Liver Function Tests in Schistosomiasis Japonica. T. P. Pesigan and A. M. Beltran.—p. 220.
Hematological Studies in Schistosomiasis Japonica. T. P. Pesigan and T. C. Banzon.—p. 227.
Evaluation of Fuadin Therapy in Schistosomiasis Japonica. T. P. Pesigan, V. Basaca-Sevilla, M. V. Pañgilinan and others.—p. 234.
Field Studies on Treatment of Schistosomiasis Japonica with Nilodin. T. P. Pesigan, M. V. Pañgilinan, V. F. Saniel and others.—p. 242.

Presse Médicale, Paris

59:933-972 (July 4) 1951. **Partial Index**

Attempt to Give a Histochemical Interpretation of Radiosensibility of Normal and Neoplastic Tissues: Part Played by Nucleic Acids. L. Cornil and A. Stahl.—p. 933.
Parathyroidectomy and Ankylosing Polyarthritis. R. Paolucci di Valmaggiore and G. Tossati.—p. 936.
*Benign Ulcer of Esophagus. L. Leger, M. Gaultier, I. Bertrand and P. Masse.—p. 944.

Benign Ulcer of Esophagus.—The occurrence of a benign ulcer of the esophagus is reported in a man, 43. The patient complained of dysphagia associated with regurgitation and occasional vomiting, in which no blood was ever demonstrated. There was no pain or weight loss. Esophageal stenosis was demonstrated on repeated roentgenographic examination. The stricture was in front of the seventh dorsal vertebra and was associated with moderate dilatation of the esophagus above and below the lesion. A small, round niche was observed immediately above the stricture, notching the right posterior aspect of the esophagus. Three biopsies were made with the aid of the endoscope, and two of them revealed an inflammatory condition of the mucosa, while the third showed cryptic cylindric mucosa. Esophagectomy was performed, and continuity was reestablished by esophagogastrostomy. Heterotopic gastric mucosa and, in addition, fragments of pyloric and duodenal mucosa in the esophagus were demonstrated microscopically. It is suggested that the development of the ulcer depended on this heterotopia by some kind of autodigestion. Recent studies seem to indicate an increased incidence of benign ulcer of the esophagus, which has usually been considered a rarity. Clinical diagnosis has been based on pain, dysphagia, regurgitation, and hemorrhage; pain is of great diagnostic value, but may be absent as it was in the authors' case. The presence of a niche on roentgenographic examination and the results of biopsy performed after endoscopic examination will establish the diagnosis of esophageal ulcer. The authors do not formally deny the concept that the ulcer of the esophagus may be the result of the digestion by acid gastric juice to which the esophageal mucosa may be subjected, but they do not believe that this process is responsible for all cases. The possibility of a short esophagus should be considered, and one should determine the exact location of the ulcer, for which the term ectopic ulcer of the stomach may sometimes be more appropriate than that of ulcer of the esophagus. Associated conditions, such as gastroduodenal ulcer or cholecystitis, should be watched for. Gastric acidity tests should be performed, and the effect of intensive treatment with atropine on the spasm, the stenosis, or the ulcer should be studied. Benign ulcer of the esophagus may take a fatal turn when allowed to progress, but with early diagnosis recovery will follow adequate medical and/or surgical treatment.

Proceedings of Royal Society of Medicine, London

44:423-522 (June) 1951. **Partial Index**

Biochemical Changes in Obstruction of Colon. E. W. Grahame.—p. 424.
Fibrous Stricture of Rectum Due to Lymphogranuloma Venereum. P. Hawe.—p. 426.
Bladder Neck in Urinary Obstruction. D. M. Wallace.—p. 434.
Solitary Cyst of Kidney. A. Walsh.—p. 437.
Importance of Radiotherapy in Treatment of Ankylosing Spondylitis. J. J. Richmond.—p. 443.
Chronic Upper Respiratory Tract Infections. R. F. Hendtlass.—p. 447.
Treatment of Some Disorders of Pituitary by Radiotherapy. A. B. Wayte.—p. 450.
*Results of Investigations of 81 Patients Treated for Tuberculosis of Foot. M. C. Wilkinson.—p. 475.
Early Changes of Kienböck's Disease of Carpal Lunate Bone. F. C. Durbin.—p. 482.

Tuberculosis of the Foot.—Wilkinson reviews observations on 81 patients with tuberculosis of the foot who were observed between 1931 and 1950. The diagnosis rested chiefly on clinical and radiological evidence, but in 48 patients there were associated tuberculous lesions, and in 50 there was, on admission, a cold abscess associated with the bone disease. Microscopic examination was performed only in 10 patients; results were positive for tuberculosis. Patients whose diagnosis was uncertain were excluded. The astragalus was the bone oftenest affected. Tuberculosis of the astragalus was usually associated with tuberculosis

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of the ankle joint and sometimes also with tuberculosis of the subastragaloid joint. Tuberculosis of the midtarsal bones was next in order of frequency. Most of the patients during the early period received only constitutional treatment. A combination of constitutional treatment and operation was used during later years. In a third group constitutional treatment was combined with streptomycin, and surgical treatment was added in some of these. The author feels that constitutional treatment remains the basic treatment of the severe form of systemic tuberculous disease of which tuberculosis of the foot is a manifestation, that the results can be greatly improved by operation on tuberculous bone, and that streptomycin is a valuable ancillary form of treatment. Constitutional treatment requires a long time (average of 3.2 years), but the results are good. The advent of antibiotics has not, in the author's opinion, altered the fundamental need for constitutional therapy in the treatment of skeletal tuberculosis.

Revista Española de Pediatría, Zaragoza

7:161-316 (March-April) 1951. **Partial Index**

*Waterhouse-Friederichsen Syndrome. M. Mariño Gallego.—p. 161.
Stages of Child Development from the Point of View of "Relative Growth." E. Jaso.—p. 205.
Early Diagnosis of Congenital Dislocation of the Hip. L. Ribó Rius.—p. 257.
A Case of Early Menarche Followed by Early Puberty. A. González-Meneses Pardo.—p. 265.
Ehlers-Danlos Syndrome. C. Vázquez and A. Arenas.—p. 275.

Waterhouse-Friederichsen Syndrome.—Mariño Gallego reviews the literature and reports on 15 children with Waterhouse-Friederichsen syndrome ranging in age from 17 days to 8 years, eight being less than one year old. Nearly three-fourths of the patients were males. The onset is usually sudden, the condition appearing extremely grave from the first hours. The most constant symptoms were high fever; lividity; cyanosis, particularly of hands and nails; hypotension; weak cardiac sounds; tachycardia; semicomatose state; petechiae spreading rapidly all over the body; hypothermia of the extremities; tachypnea; and pain elicitable by palpation of renal areas. The striking contrast between cold extremities and the high temperature in abdomen and head is an early sign and an aid in diagnosis. There was a high potassium level, normal blood sugar, and severe anemia with leucocytosis, lymphocytosis, neutropenia, and shift to the left. Blood culture was done in four cases, only one culture yielding meningococci. Bacteriologic examination of the petechiae gave negative results in the two cases in which it was performed. Treatment must be begun quickly. The condition was so grave and the vascular collapse so severe in some of these patients that treatment could not be as rapid and complete as was desirable. All patients were given heat in moderate form, oxygen, and cardiovascular stimulants administered centrally as well as peripherally. Hypertonic solution of sodium chloride, blood, or plasma were given when possible. Sulfonamides were given by mouth when possible or intravenously or intrathecally when signs of meningitis were present. Penicillin, because it was difficult to obtain, was given only to some patients. Despite early treatment, no cure was observed. Death occurred within six to 50 hours after onset of the disease. Necroscopy was performed in eight patients. The capsules of the adrenals were found greatly increased in size and weight in every case and had a hemorrhagic and more or less necrotic aspect. Meningitic lesions were observed in two cases.

Schweizerische medizinische Wochenschrift, Basel

81:589-608 (June 23) 1951

*Occurrence of Allergic Reactions to Treatment with Penicillin and Streptomycin. R. Schuppli.—p. 589.
Electrophoretic Studies on Normal Pregnant Women and on Women with Late Gestosis. E. Glatthaar, H. Suenderhauf and C. Wunderly.—p. 592.
Influence of 2,3-Dimercaptopropanol-1 (BAL) on Inhibitory Power of Penicillin and Streptomycin. J. Giesen and P. Koelzer.—p. 597.
Treatment of Coronary Insufficiency in Light of Recent Concepts of Pathogenesis. G. Schimert.—p. 598.

Allergic Reactions to Penicillin and Streptomycin.—Allergic reactions in 53 patients treated with penicillin and in seven patients treated with streptomycin are reported on. Only two of the patients with allergic reactions to penicillin had been treated previously with penicillin; in all the others the allergy became manifest during the first short course of treatment with penicillin, most frequently about the 10th day after the first injection. The seven patients with allergic reactions to streptomycin were nurses who had been in contact with the drug for some time. Reactions suggesting general sensitization occurred in 37 of the 57 patients treated with penicillin. In 28 these reactions were urticarious; seven patients had noncharacteristic eruptions, three had mycidlike eruptions; and six had reactions suggesting general sensitization associated with mycidlike eruptions and/or eczema. The occurrence of mycidlike eruptions suggests that the antibiotics that are products of fungi may cause reactions in man similar to those that occur spontaneously in persons who are carriers of skin fungi and have been sensitized to their products. Of 25 patients with penicillin allergy, 23 gave a positive reaction to intracutaneous tests with trichophytin, while only 12 gave a positive reaction to intracutaneous tests with penicillin. Of 30 patients with mycosis who gave positive reactions to trichophytin tests, five also gave positive reactions to penicillin tests. The increased incidence of allergic reactions to antibiotics suggests that in the future the following rules should be observed: 1. Boils, simple pyoderma, and doubtful febrile conditions of short duration are not to be considered as indications for treatment with penicillin. 2. Special caution is indicated for patients with mycotic infections, particularly during the summer months. 3. Previous occurrence of allergic manifestations following the application of antibiotics should caution against repeated treatment, particularly in patients who have had urticarious manifestations. These patients should first be given a small dose of the antibiotic to detect an occasional severe hypersensitivity.

Wiener klinische Wochenschrift, Vienna

63:469-484 (June 29) 1951. **Partial Index**

*General or Local Anesthesia for Tonsillectomy in Adults. K. Kofler.—p. 472.
A Case of Pulmonary Tuberculosis in Presence of Familial Hemolytic Icterus. W. Danzer.—p. 475.
Simple Microchemical Demonstration of Barbiturates for Clinical Purposes. H. Kresbach and H. Gomahr.—p. 476.

General or Local Anesthesia in Tonsillectomy in Adults.—From 25 years of experience, the author has become convinced that general anesthesia has many advantages over local anesthesia in tonsillectomies performed on adults. Following are some of these of general over local anesthesia: 1. The postoperative reaction of the wound niches and of their closest surroundings is always less, and the postoperative pains are also less severe and of shorter duration. Absence of the tissue damaging effect of procaine hydrochloride probably explains both those factors. 2. If tonsillar stumps are to be removed, or if a peritonsillar abscess has existed, the operation should always be done with the patient under general anesthesia, because, first, the edema produced by the infiltration may cover up small remnants, and, secondly, uniform distribution of procaine hydrochloride is impeded by scars. 3. The technique of tonsillectomy is greatly facilitated by complete exclusion of reflexes and by the relaxation of the tissues. The operative field is not only painless, but also, because of absence of pressure, almost bloodless, and thus a better survey is provided and there is less likelihood that tonsillar remains are left behind, so that the undesirable after-effects that may result from this are thus avoided. 4. The local inflammations sometimes produced by procaine hydrochloride and the possible severe complications resulting from them are avoided. In the presence of heart disease tonsillectomy with the patient under general anesthesia is less taxing for the patient than with local anesthesia, because in the latter case the excitement may prove harmful. Of course, in the presence of serious heart lesions the heart must be properly prepared for the operation. 5. Many observers have found that pulmonary complications are much less frequent when tonsillectomy is done with general rather than with local anesthesia.

BOOK REVIEWS

Diseases in Old Age: A Clinical and Pathological Study of 7941 Individuals Over 61 Years of Age. By Robert T. Monroe, M.D. Harvard University Monographs in Medicine and Public Health, No. 11. Cloth. $5. Pp. 407. Harvard University Press, Cambridge 38, Mass.; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, 1951.

This monograph is a report on a clinical, pathologic and therapeutic survey of the records of all patients over 61 years of age on the medical service of the Peter Bent Brigham Hospital from its opening in March 1913 to March 1943. It includes a consideration of the social and economic problems posed by illness of older people. The survey includes the records of 7,941 patients (4,088 men and 3,853 women). Among these there were 1,874 deaths, with autopsy data on 1,171.

The first of the 14 chapters presents a review of the general features of the group; the 13th chapter is a summary of the medical findings; and the last chapter deals with a discussion of the community facilities essential for old people. The other 11 chapters deal with diseases of organ systems; nutritional disorders and alcoholism; malignant diseases and venereal diseases.

The organization of the geriatrics clinic at the Peter Bent Brigham Hospital is described together with a statement of the basic needs and instruments required for the successful operation of such a clinic.

The author states that three-fourths of the men and two-thirds of the women claimed general good health throughout their lifetime; there is no evidence of a particular constitution predicating the likelihood of one's reaching old age.

Considerable space is given to the discussion of cerebral arteriosclerosis, heart disease, arthritis and digestive disturbances, as these present peculiarities in older persons. Malnutrition and psychoneurosis are prominent features among the patients.

Although a major portion of the text is devoted to analysis of the records studied, the author projects the clinical experience gained from the operation of a geriatrics clinic to emphasize particular considerations of important pharmacological principles and therapeutic programs required in the clinical management of older patients.

A feature of the monograph that deserves special mention is a discussion of social and economic forces that influence emotional situations and difficulties in adjustment among apparently well, but obviously ill, aging persons. Suggestions for steps to be taken by communities to cope with these situations are outlined.

It is interesting to note the change in employment status of older men over the 30-year interval covered by the study. In the decade of 1913-1923, 92.4% of men age 61-65 were gainfully employed; in the decade of 1933-1943, 66.7% were employed. Also, employment was more numerous up to the age of 80 in the first 10 years than in the last 10. The men who retired at age 61-65 trebled in the 30-year period.

It is indicated that there is a growing burden on the hospital imposed by sickness in old age. In 1913, one in every 16 admissions to the medical service was over 61, while in 1943 one in every five admissions was over 61. This is an increase of 200% in 30 years and is considerably greater than the increase in the number of persons over 61 in the general population.

If the situation in the Peter Bent Brigham Hospital is typical, general hospitals today have 20% to 30% of their beds occupied by patients who are over 61 years of age. That is a concentration several times what it is in society at large. When one considers that new hospital construction now costs from $10,000 to $25,000 per bed and the daily per capital cost of care is $12 to $18 a day, the question is raised as to the need for hospital beds for these older people whose conditions could be handled well elsewhere. The author reviews the available nonhospital facilities for the care of the aged, notes their inadequacies, and makes suggestions for the organization of old-age centers.

This documented book, relating actual clinical experience, is most timely and should find a large group of readers among the medical profession. Implicit in the presentation is that medicine must take its proper place among the social sciences in addition to maintaining its established place among the natural sciences.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Diseases of the Endocrine Glands. By Louis J. Soffer, M.D., F.A.C.P., Associate Attending Physician and Head of Endocrine Research Laboratory and Clinic, Mount Sinai Hospital, New York City. With assistance of J. Lester Gabrilove, M.D., Research Assistant, Endocrine Research Laboratory and Clinic, Mount Sinai Hospital, New York City. With section on Carbohydrate Metabolism, Hypoglycemia, and Diabetes Mellitus by Henry Dolger, M.D., and section on Gonads by Arthur R. Sohval, M.D. Cloth. $15. Pp. 1142, with 91 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1951.

This book is intended, according to the author's preface, "to bring together our present knowledge" in endocrinology. The author has been assisted by Dr. Sohval, who has written the section on the gonads (pp. 407-688), and by Dr. Henry Dolger, who has written the section on diabetes, hypoglycemia, and hyperinsulinism (pp. 903-1077). The authors unfortunately have failed to correlate the basic principles of the subject with its clinical applications in a manner that would please either the student or the general practitioner desirous of specific practical information. The book impresses one as having been put together from accumulated notes on various topics without respect to their relative merits or importance and without organization or coherence. For example, after devoting over a page to the toxic effects of thiouracil (which has been largely replaced by its derivative), only a short paragraph is devoted to the more important propyl thiouracil. The treatment of Addison's disease, to quote a second example, although given in some detail, is so vague and repetitious as to leave doubt in the mind of the reader as to the exact manner in which the various procedures described are to be utilized. Over a page is devoted to "The Treatment of Addison's Disease with Transplantation of Adrenal Tissue," a procedure that is certainly far from established, as the author himself notes. The illustrations, which are too few for a good textbook, are in many cases nonendocrinological (e. g., Fig. 8 of an achondroplastic dwarf; Fig. 61 of ectodermal dysplasia) or too poor (e. g., Fig. 38, 82, and 88) to illustrate the points emphasized. On the credit side, it may be said that the material included is voluminous, up-to-date, and well documented by exhaustive references to the literature. It is regrettable that the authors failed to digest the sound material which they undoubtedly have at their disposal and present it in a more literary and scholarly manner essential in a good textbook.

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Genetics in the 20th Century: Essays on the Progress of Genetics During Its First 50 Years. Edited for Genetics Society of America by L. C. Dunn, Professor in Columbia University, New York. Cloth. $5. Pp. 634, with illustrations. The Macmillan Company, 60 5th Ave., New York 11, 1951.

This book consists of a series of papers presented at the Golden Jubilee of Genetics held under the sponsorship of the American Institute of Biological Sciences, of which the Genetics Society of America is a member. The meeting celebrated the 50th anniversary of the rediscovery of Mendel's work, which led to the founding of the science of genetics. The essays, contributed by 26 American and foreign authorities, trace the development of genetics during the past half-century and survey its actual and potential contributions to human welfare in such varied fields as cancer, disease resistance, plant and animal breeding, and plant pathology. This volume can be recommended for those interested in obtaining a comprehensive view of the astonishing advance made in this specialty during the comparatively short span of 50 years.

Angewandte und topographische Anatomie: Ein Lehrbuch für Studierende und Ärzte. Von Gian Töndury, ordentlicher Professor der Anatomie an der Universität Zürich. Cloth. 70 marks; $16.65. Pp. 416, with 369 illustrations. Georg Thieme Verlag, Diemershaldenstrasse 47. (14a) Stuttgart-O; agents for U. S. A.: Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1951.

This book on applied and topographic anatomy is divided into three major parts, namely, the torso, the head and neck, and the extremities. The author has attempted to keep the work practical and applicable for both undergraduate and postgraduate students of medicine and surgery. He rightfully stresses the importance of embryology and emphasizes the thought that this is the logical approach to understanding complicated adult anatomy. He has, therefore, started each chapter with a short section pertaining to the embryology of the given region to be discussed. The illustrations are well done and are closely correlated to the text. The author mentions the importance of three-dimensional illustrations, however, this thought could have been carried out to a greater degree. Wherever possible, roentgenograms have been added to stress certain anatomic relationships. The commoner anomalies are described adequately, and the possible explanations for their existence are given in the discussions under embryology. The pen and ink drawings on regional lymph nodes and lymph drainage are depicted in simple and refreshing style helped by the use of arrows showing the drainage to a group of given nodes. In Fig. 117, on page 130, it would have been well to label the posterior cecal artery, since it is the branch herein depicted that gives rise to the appendical artery. Fig. 279, on page 299, represents the time-honored diagram revealing a complete capsule surrounding the thyroid gland. In the light of present knowledge this would not be considered correct, since the illustration fails to show the attachment of the pretracheal layer of deep cervical fascia to the thyroid gland.

The material has been presented well, showing good planning and excellent cooperation between the author and the artist. The paper is good, the binding sturdy, and the print legible. It can be recommended as a good collateral volume for anyone who is interested in anatomy and who can read German.

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Help Yourself Get Well: A Guide for TB Patients and Their Families. By Marjorie McDonald Pyle, M.D. With foreword by H. Corwin Hinshaw, M.D., Clinical Professor of Medicine, Stanford University School of Medicine, San Francisco. Cloth. $3. Pp. 235. Appleton-Century-Crofts, Inc., 35 W. 32nd St., New York 1, 1951.

This small book contains a personal message of advice and encouragement to all victims of tuberculosis, but especially to the patient who has just been told that he has tuberculosis. The author is well-qualified to give this advice. She is a physician and scientist and has been a patient. She writes with the sympathy and insight of a fellow sufferer but with the objectivity and medical accuracy that stems from her scientific background, and what she writes is readable. She leads the new patient through the various periods of adjustment in this chronic disease: the initial acceptance of the diagnosis, the development of faith in the physician, the acclimatization to the sanatorium and its routine, the maintenance of morale, the planning for rehabilitation, and the avoidance of relapse on returning home. A program of occupational therapy and amusement for the bed patient is outlined. The book is recommended as a valuable prescription for the patient with tuberculosis, and many of its features will be of help to patients with other chronic diseases.

Low-Sodium Diet: A Manual for the Patient. By Thurman B. Rice, A.M., M.D., Professor of Public Health, Indiana University School of Medicine, Indianapolis, Indiana. Cloth. $2.75. Pp. 103. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1951.

This book, written for patients, describes in detail the preparation of low-sodium diets. The author is an epicure at heart, for he takes great care to make the diets palatable; therein lies much of the importance of the book.

While the format of the book is pleasing, it would seem that it could have been less expensive and more convenient if blank paper had been used less extensively. The author justifies his claim in the preface that he has had a large experience in writing for laymen. The book can be recommended as among the best of the manuals for the patient's use.

Pharmaceutical Botany. By Heber W. Youngken, Ph.M., Ph.D., Sc.D., Professor of Biology and Pharmacognosy, Massachusetts College of Pharmacy, Boston. Seventh edition. Cloth. $7. Pp. 752, with 548 illustrations. Blakiston Company (Division of Doubleday & Company, Inc.), 1012 Walnut St., Philadelphia 5, 1951.

The new edition of this textbook has been revised to include more information on general botany without the reduction of material on pharmaceutical botany. A new chapter on metabolism has been added.

The opening chapters are concerned with the morphology of the vegetative structures, followed by the chapter on metabolism and then three chapters on the morphology of the reproductive structures of plants. There are single chapters on plant environment, plant anatomy, and genetics and evolution.

A chapter on taxonomic principles introduces several chapters devoted to discussion of plant classes. Throughout the text, tables are included indicating the drugs occurring in different plant families, the genus and species names from which the drugs are obtained, the parts of the plant which yield the drugs, and the habitat of the plants. In the chapters on monocotyledons and dicotyledons, only the drug-bearing plants are discussed.

Appendix 1 is a 10 page discussion of the microscope, its component parts, use, and care. Appendix 2 is concerned with histologic technic. There is a 40-page glossary, which is a welcome feature. Just before the very detailed index is a classified list of reference works.

The physician interested in botany and in plant origin of drugs would appreciate this book, but it is emphasized that this is primarily a textbook and only secondarily a reference source.

Nerve Impulse: Transactions of the First Conference, March 2-3, 1950, New York, N. Y. Editor: David Nachmansohn. Cloth. $3. Pp. 159, with 4 illustrations. Josiah Macy, Jr. Foundation, 565 Park Ave., New York 21, 1951.

This monograph has been prepared by five authors in as many chapters: Harry Grundfest, J. H. Ivastel, C. Ladd Proser, David Bodian, and Henry B. Steinbach. These chapters deal with electrophysiology, biochemistry, comparative physiology, histology, and ion exchange and permeability.

This is the unindexed stenographic report of the conference with the free exchange of opinions and ideas, the interruption of the speaker with questions and often digression into rather distant, though related fields. Undoubtedly there is some merit in such a presentation. It permits the reader to gain the flavor of the conference, to become a vicarious participant, to a limited degree. However, there is no merit in also giving the reader so complete an insight into the colloquialisms of each of the participants, into their variable ability to speak grammatically and express their thoughts syntactically. In fact, the ungrammatical expressions, the ambiguity, and the lack of good organization are at times appalling and greatly confuse the reader. It is to be regretted that so much money was expended in such excellent press work and binding with so little attention to clarification of the various speakers' statements.

An Atlas of Anatomy by Regions: Upper Limb, Abdomen, Perineum, Pelvis, Lower Limb, Vertebrae, Vertebral Column, Thorax, Head and Neck, Cranial Nerves and Dermatomes. By J. C. Boileau Grant, M.C., M.B., Ch.B., Professor of Anatomy in University of Toronto, Toronto. Third edition. Cloth. $12. With 637 plates. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1951.

More than 70 new illustrations have been added to this edition, and 28 old illustrations have been replaced or improved. The regions of the body are shown in plastic drawings based on photographs of anatomic dissections with special emphasis on the topographical relation of the various structures. Colors added to most of the halftones help to draw attention to details which are concisely discussed in brief legends. The Atlas will be used profitably by the student of anatomy together with a more detailed textbook. The interest of the clinician will be stimulated by perusal of the beautiful plates and schemes for an always needed brush-up of basic anatomic relations. More representative illustrations of the brain and its related structures should be added. The present grouping "The Head and Neck" might better be separated into one part on the head with more emphasis on the brain and another part combining the neck and the back.

This atlas has proved its usefulness, is very reasonably priced, and is highly recommended.

Lehrbuch der Histologie und der mikroskopischen Anatomie des Menschen. Von Philipp Stöhr, Jr., Professor der Anatomie und Direktor des anatomischen Instituts der Universität Bonn. Cloth. 66 marks. Pp. 528, with 510 illustrations. Springer-Verlag, Reichpietschufer 20, Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, 1951.

This textbook on histology presents in a relatively small space a wealth of information, comparable to that found in the standard American textbook. The material is well-organized, and the style is clear. References are omitted. There is a large number of excellent illustrations, partly photomicrographs and mostly drawings, many in color. The great majority of the illustrations are original, with the exception of the useful three-dimensional drawings of Braus, which assist greatly in the plastic understanding of the topographic relations. However, not only the illustrations should make this new German textbook interesting to the American reader, but also the extensive discussion that the nervous system and especially the peripheral nervous system and the terminal nerves in the various parenchymal organs receive. These aspects are especially well-illustrated. This emphasis on the nervous system is not surprising, in view of the great interest that the autonomic nervous system and its abnormalities are receiving in Germany. The author himself has markedly stimulated this interest by his previous work. In the discussion of the functional significance of the structure, more emphasis is given to the tissues as a whole than to the cells as individual units, a tendency that is again related to the emphasis on the innervation of the tissues or organs. In the foreword, synthesis in the histological study is emphasized in contrast to the analytic dissection. It is indeed an esthetic pleasure to look through this elegant book.

Radiochemical Studies: The Fission Products. Edited by Charles D. Coryell, Department of Chemistry and Laboratory for Nuclear Science and Engineering, Massachusetts Institute of Technology, Boston, and Nathan Sugarman, Institute for Nuclear Studies and Department of Chemistry, University of Chicago, Chicago. Book 1: Parts I, II, III, IV—Papers 1 to 52. Book 2: Part V—Papers 53 to 199. Book 3: Parts V (cont.), VI, VII, VIII—Papers 200 to 336. National Nuclear Energy Series, Manhattan Project Technical Section, Division IV—Plutonium Project Record, Volume 9. Cloth. $18.50. Pp. 516; 517-1315; 1316-2086, with illustrations. McGraw-Hill Book Company, Inc., 330 W. 42d St., New York 18; Aldwych House, Aldwych, London, W.C.2, 1951.

These three volumes, though essentially chemical in content, combine the fascination of a detective story with that of a necropsy, for they describe the means used to identify what remains after uranium nuclei have been disrupted by fission, whether in an atomic bomb or in a chain-reacting pile. In 336 papers and four appendixes, the technics and results of these identifications are given. In Paper 185, for example, Newton, Kant, and Hein review certain facts suggesting the presence of an isotope of praseodymium; the necessary chemical work then proceeds according to plan, and it yields a substance with a half-life of only 17.5 minutes. Although the quantity is small, it suffices to establish the properties of this evanescent material.

This new chemistry has opened up enormous fields of research, and it will be a long time before all the possible applications in medicine can be explored. Adding to the interest of these volumes is the description (Paper 33) of a laboratory for high radioactivity, with several photographs showing the devices whereby the handling and storing of dangerous fission products has so far been accomplished with amazingly few mishaps.

Advances in Biological and Medical Physics. Volume II. Edited by John H. Lawrence and Joseph G. Hamilton. Cloth. $7.80. Pp. 348, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1951.

Like its predecessor, this second volume on advances in biological and medical physics is concerned chiefly with applications of nuclear physics in the medical sciences. The biological effects of radiations, in particular the carcinogenic effects, are summarized in the light of recent work. Experiments with radioactive forms of carbon, sulfur, iodine, sodium, phosphorus, and iron are reported, and the possibilities of fruitful research on such vexing problems as atherosclerosis are sketched. The book does not contain anything of immediate practical interest to the physician, and even a reader with some knowledge of mathematics will be alienated by the peculiar notations exemplified on pages 54 and 55. The work as a whole, however, is the result of profound scholarship and a most valuable contribution.

A Handbook on Diseases of Children, Including Dietetics & the Common Fevers. By Bruce Williamson, M.D., F.R.C.P., Physician, Children's Dept., Royal Northern Hospital, London. Sixth edition. Cloth. $4.50. Pp. 440, with 94 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1951.

This book fills a definite need for a small but authoritative work on the diseases of children for the desk of the general practitioner or others who have an interest in, but not a specialized knoweldge of, the subject. The author covers the important aspects of pediatrics in a well-written and concise fashion.

Suggested methods of therapy are completely up-to-date. The illustrations do not compare favorably with the excellence of the text. Some are obviously old, and the photographic technique is frequently poor. In view of the great importance of malignant lesions as a cause of death in childhood, it is felt that they are given inadequate space in this volume. There are other debatable points, such as the importance of status thymicolymphaticus as a cause of death. However, in general, this is at present the best handbook on the subject of diseases of children on the market today.

La tiroides y sus enfermedades: Publicación del Massachusetts General Hospital. Por J. H. Means, M.D., profesor de la Clínica médica de la Universidad de Harvard, Boston. Traducción [de la segunda edición en idioma inglés] de los doctores Carlos Galli Mainini y Arturo Oñativia. Cloth. $180 (Argentine). Pp. 614, with 61 illustrations. Ediciones Artecnica, Venezuela 1702, Buenos Aires, [1951].

The translation of this excellent book should be gratefully accepted by every physician of the Spanish-speaking countries, as it represents the magnificent work done by Dr. Means at the Thyroid Clinic at Massachusetts. The thyroid—its hormone, anatomy, physiology, pathology, and relations to other endocrine glands—is discussed in detail and with simplicity and authority. The chapters are well organized, each ending with a helpful résumé and a very extensive bibliography. The 31 chapters completely cover every aspect of the thyroid and its diseases.

The translation is exceptionally good, and the reader has the impression of reading an original instead of a translation. There are few typographical errors for a book of this size, and these are minor.

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The Housefly: Its Natural History, Medical Importance, and Control. By Luther S. West, Professor and Head of Department of Biology, Northern Michigan College of Education, Marquette. Cloth. $7.50. Pp. 584, with 177 illustrations. Comstock Publishing Co., Inc., 124 Roberts Place, Cornell Heights, Ithaca, N. Y., 1951.

This is the first comprehensive book on the housefly that has appeared in nearly 40 years. The author has summarized the practical points of the older books, together with the vast amount of material that has been published since that time. Factors having to do with the life history and breeding of flies are given in detail. Many practical suggestions are included in the chapter on public health relations, while a long list of human diseases that flies may possibly transmit is presented. The newer insecticides are discussed, with emphasis on the fact that they have not entirely solved the problem, since new generations of houseflies develop a resistance to the insecticide. Thus, the older methods of control cannot yet be discarded.

Cold Spring Harbor Symposia on Quantitative Biology. Volume XV: Origin and Evolution of Man. Cloth. $7. Pp. 425, with illustrations. Biological Laboratory, Cold Spring Harbor, L. I., New York, 1950.

The present volume consists of a series of papers dealing with the evolution of man with emphasis on the origin of the human stock and the problems of human racial differentiation. The symposium represents a collaborative study between geneticists and physical anthropologists and will therefore be of particular interest to workers in these fields. The practicing physicians, however, should find much of interest in the contributions dealing with the frequency, extent, and genetic determination of various specific characters that may be of racial significance. Included in these papers are a report by Neel on the population genetics of thalassemia and of sickle cell disease, a discussion on the inheritance of blood groups by Race, and a review by Boyd of the traits that can be used in population genetics.

QUERIES AND MINOR NOTES

IRRADIATION OF PLASMA

To the Editor:—*Please give information about the proved value of irradiation of plasma to a county (population 150-000) blood bank. Is it worth $1,600?*

Stuart B. Blakely, Binghamton, N. Y.

Answer.—It is inadvisable to use plasma without subjecting it to ultraviolet irradiation by an approved and tested machine, because of the risk of virus hepatitis. It is another question whether the installation of such equipment is economically feasible. A community of 150,000 persons may require between 400 and 800 units of plasma annually. This amount would justify the purchase price of the machine. However, a greater problem is that of having an expert technician to operate and maintain the irradiating equipment. If such a skilled person is not available, an irradiation installation is not wise.

DIAGNOSIS OF PREGNANCY

To the Editor:—*How soon after the last menstrual period does a series of three daily injections of neostigmine have significance in the diagnosis of pregnancy?*

J. G. Bradford, M.D., Montesano, Wash.

Answer.—Three daily injections of neostigmine given about five weeks from the beginning of the last menstrual period will yield a presumptive diagnosis of pregnancy in perhaps 60 or 70% of the cases. However, it will yield a far higher incidence of accuracy when given about six weeks from the beginning of the last menstrual period. In other words, the test is far more accurate when employed about two weeks after a missed menstrual period.

BLUE NEVI

To the Editor:—*I would like information regarding blue nevi. I have under observation a white woman, 36, who gives a history of dermatitis on the left upper arm since she was about 12. This remained static until 1949, when some acceleration of growth was noted. A similar acceleration occurred in 1950, with numerous blue-black macular to shotty lesions over the outer and upper two-thirds of the left arm and shoulder. Intermingled with these are the brownish pigmented macules of the common variety of nevus. Reports of two biopsies were "blue nevus with no evidence of malignancy."*

William B. O'Connor, M.D., St. Joseph, Mo.

Answer.—Blue nevi are benign lesions and are no more prone to become malignant than are other nevi. When one begins to change in character, either in its size or color, a histologic examination should be made of it, for there have been a few cases recorded in which melanoma developed after irritation.

LIE DETECTOR TESTS

To the Editor:—*Is the "lie detector" test accepted as reliable and scientific by the medical profession? If not, what are the specific reasons for its unreliability?* *M.D., Maryland.*

This inquiry was referred to two authorities, whose respective replies follow.—Ed.

Answer.—The answer to this question necessarily refers only to those members of the medical profession who have had experience and training in the "lie detector" technique. Several different types of apparatus are manufactured that are classed as lie detectors. Those considered most reliable by specialists in this field are instruments that simultaneously record on a moving strip of paper the rhythm and depth of respiration, the pulse rate and blood pressure, and the resistance of the skin to the passage of a weak current of electricity, which is known as the electrodermal response. These physiological phenomena are recorded during a period when no questions are asked the subject and also during the time when he is being interrogated on both relevant and irrevelant questions. The apparatus records with a high degree of accuracy changes that occur during this period of questioning.

The interpretation of the completed graph is the key to the success of the lie detector technique, and, in that, it is akin to the interpretation of x-rays, electrocardiograms, and other scientific tests that detect abnormal physiological responses. Consequently, the training, experience, and integrity of the operator who diagnoses the completed graph is of paramount importance in evaluation of the reliability of his interpretation.

This apparatus and technique has now been tested by experience in thousands of cases for over a quarter of a century. Conducted by a qualified operator this technique for detecting deception has demonstrated a reliability comparable to most physiological examinations that are widely accepted by the medical profession. The nature of the examination itself precludes an accurate estimate of the percentage of failures, but, based on the large number of cases in which subsequent events proved or disproved the lie detector diagnosis, the percentage of error is low. Among members of the medical profession experienced in this field, the lie detector test is accepted as scientific and as a valuable means of differentiating truth from falsity.

Answer.—No simple answer can be given to this query as it is worded. There is not one lie detector test but several, and there are not reasons for its unreliability but conditions under which it should not be used and cautions to be observed in interpreting the results. Lie detectors that provide tracings of blood pressure, respiration, muscular movements, and skin resistance have a sound physiological basis. They also have a far sounder psychological basis than the "infinite variety of cruelties" used in the past which "were only uniform in expressing the frustration felt by the prosecutor and police." A simple control procedure can be used to preclude the possibility that idiocy, emotional indifference or delusional states might affect results. Other precautions that must be taken and limitations to be expected have been set forth in recent (1950) articles by Floch and by Inbau (J. Criminal Law and Criminology). Probably many physicians today will agree with the opinion recorded by Le Moyne Snyder (*Ann. Int. Med.* **18:**551 [April] 1943) that "interrogation by means of the lie detector provides a scientific, humane and highly accurate adjunct to criminal investigation."

DECIDUOUS TEETH

To the Editor:—*We know that the deciduous teeth should be left in as long as possible. If these teeth are down to mere shells and not infected and not painful, are they of value in guiding the permanent teeth and saving space for them or should they be pulled to avoid danger of infection?*

Jackson Herbert, M.D., Portsmouth, Ohio.

Answer.—The pulp of an actively carious tooth is always in danger of infection. If there is no dentist available to remove the decay and restore the crown, extraction may be considered, with the realization that loss of space may result. Ideally, these teeth should be restored by the use of shell crowns, so that the crown will serve in mastication and in guiding the permanent successors into correct positions. If the crown is not restored, these teeth act only as partial space maintainers. If the tooth is extracted and no space maintainer is inserted, the space will be closed in the posterior region of the mouth. Therefore, the best procedure is restoration of the crown.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request

SYPHILIS AND PREGNANCY

To the Editor:—*A multipara five months pregnant has a strongly positive Wassermann test. She is in good health and has no clinical signs of syphilis. In 1941 she gave birth to a normal baby; a blood test was not taken, and there is no record of a cord Wassermann test. In 1943 she again gave birth to a normal baby and there is no record of a blood test on the mother or of a cord Wassermann test. In 1946 a prenatal blood Wassermann was found to be 4+, and the patient was treated thoroughly throughout her pregnancy for syphilis. She gave birth to a normal baby, and the cord blood gave a positive Wassermann reaction. Should this patient be treated for syphilis throughout the remainder of her pregnancy? If so, suggest drugs, dosage and interval of treatment.*

M.D., Pennsylvania.

Answer.—Whether this patient should now be retreated for syphilis, in view of the fact that she is five months pregnant, depends in part on the character and amount of antisyphilitic treatment given in 1946 and in part on the patient's clinical and serologic status at the moment. According to Goodwin and Farber (Necessity for Treatment of Pregnant Syphilitic Women During Every Pregnancy, *Am. J. Syph., Gonor. & Ven. Dis.* **32**:409, 1948), "It is not necessary to administer antisyphilitic treatment to a syphilitic woman during every pregnancy; . . . there is a high degree of probability that the infant will be normal if maternal treatment is withheld: (*a*) regardless of the stage and duration of syphilitic infection in the mother at the time of her original diagnosis and treatment; and (*b*) regardless of the interval between the previous treatment and the pregnancy in which it is contemplated that further treatment be omitted; *provided that* (*a*) the mother has previously received 4.0 gm. or more of arsphenamine (or its arsenical equivalent) together with concomitant bismuth; or 2.4 or more million units of penicillin . . .; and whether this previous treatment was administered during the previous pregnancy or during a non pregnant interval; and that (*d*) the mother shows no clinical signs of active syphilitic infection; and that (*e*) the mother is seronegative (blood STS) or, if still seropositive, in low titer only (1 to 8 dilution units). . . . A syphilitic woman should be further treated in any pregnancy in which she herself shows clinical evidence of active syphilitic infection; or in which, in the absence of such clinical evidence, she herself has a positive blood STS in a quantitative titer of 16 or more dilution units."

These conclusions were based on a study of 570 pregnancies in 363 women who had previously been treated, but in whom, in the 570 pregnancies in question, further treatment was purposely omitted. The above data indicate the necessity for determination of the clinical and laboratory status of the patient in question. Is she free of clinical evidence of syphilis? What is the quantitative titer of her blood serologic test? With this information a decision as to further treatment can be reached. If additional treatment is desirable, it may now be given with procaine penicillin in oil plus 2% aluminum monostearate, given in 10 individual muscular injections of 600,000 units each, to a total of 6 million units. These injections may be given daily or every second or third day.

The query suggests that further information is desirable in this situation from the standpoint both of the patient herself and of her family. It is stated that in 1941 and in 1943 she gave birth to a normal baby. This statement implies that these two children have now been examined and have been found to be free of congenital syphilis, although this is not definitely stated. If this is the case, it is again implied that the patient may have been infected between 1943 and 1946. Nothing is said of the examination of her husband, and, if this has not been done, it should certainly be done now. It is further stated that in 1946 "She gave birth to a normal baby, and the cord blood gave a positive Wassermann reaction." This fact does not establish a diagnosis of congenital syphilis in this infant, and the child should be further studied from this point of view.

Finally, there is no mention as to whether the mother herself has had her spinal fluid examined; if she has not, this should certainly be done.

NONFATAL CARDIAC RUPTURE

To the Editor:—*A colleague told me of the following case, which was quite startling. The patient was a middle-aged white male who had the typical clinical course and electrocardiographic findings of acute myocardial infarction. The course was stormy. The patient went into peripheral circulatory failure during the first day or two but survived, and congestive heart failure later developed. About the second week, he showed signs of an acute cardiac tamponade. Pericardial aspiration yielded pure blood, and a rather large amount was withdrawn. During the next few days subsequent taps also yielded large amounts of blood. The patient eventually recovered and is now working, without overt evidence of cardiac failure. The physician who attended the case feels that the patient suffered a rupture of the heart, with the small communication between the ventricle and pericardial cavity eventually healing. Is it possible that nonfatal cardiac rupture can occur?*

M.D., Tennessee.

Answer.—Rupture of the ventricular wall occurs in a small number (5 to 10%) of patients with acute myocardial infarction. As a rule, in such cases death comes quickly with tamponade. Recovery must be extremely rare. However, it may not always be possible to identify the cases in which this happens, although, of course, if there were much blood in the pericardial sac it should be easily identified, as in the case recorded here. Since the tract of perforation is often very tortuous and small, it is not impossible that bleeding may cease and that recovery may take place without any therapy at all other than rest. With rupture of the heart by trauma, repair has been effected surgically, but, in the case of acute myocardial infarction, this would presumably be difficult or impossible both because of the hazard of the surgery and also because of the friability of the damaged heart muscle.

Other causes for the pericardial hemorrhage (and it seems certain that the blood was removed from the pericardium and not from the heart) are much less likely. These include hemorrhagic pericarditis associated with infarction of the pericardium itself and a dissecting aneurysm of the coronary artery with rupture into the pericardium.

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MIGRAINE

To the Editor:—*A patient says that two of her friends have received intramuscular injections of their own urine as a therapeutic step for the treatment of migraine. Although the procedure appears to me idiotic, I must have some plausible answer to satisfy my patient.*

Ralph J. Mitchell, M.D., Vineyard Haven, Mass.

Answer.—There is no reason for supposing that giving a patient injections of his urine would help his migraine.

FIBROSITIS AND WEATHER VARIATIONS

To the Editor:—*With respect to the query concerning "chronic lumbago, sacroiliac neuritis, and fibrositis of the cervical vertebrae" (J. A. M. A. July 28, 1951), the difficulty in answering this is the fact that none of these is a recognizable clinical entity, any more than "neuralgia" or "muscular rheumatism." As to the relation to meteorologic changes, I think it was Sir Robert Jones who said that during barometric changes there are changes in blood pressure generally and that in scar tissue, the result of trauma or inflammation, the arterioles are "hemmed in" and cannot respond by vascular dilation and contraction commensurately with those in normal surrounding tissues. The immediate local disparity in pressure causes pain that goes away with elimination of the disparity, which is hastened by soaking the affected part in hot water or, better, by contrast (hot and cold) plunges. Theoretically, if the patient is free from pain in hot weather, good advice might be to seek a climate where it is always so, assuming, in light of vague diagnosis and "chronic fatigue," that amebiasis and brucellosis have been ruled out.*

Richard B. Dillehunt, M.D.,
2607 N. W. Roanoke St., Portland 10, Ore.